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THE PINATUBO NEGRITOS

THEIR USEFUL PLANTS AND MATERIAL CULTURE

By ROBERT B. FOX

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EIGHTEEN PLATES AND FIVE TEXT FIGURES

INTRODUCTION

The problems and methods.—One of the most challenging problems in Philippine ethnology is the search for those elements of culture of the Philippine pygmies—tools, language, beliefs, and attitudes—which might be held in common by the widely scattered Negrito groups, distinct from other Philippine people, and which might define basic elements of an earlier Negrito culture or cultures.[1]

The difficulties of this type of inquiry are manifold, for the Negritos, like other Philippine ethnic groups, have recently

[1] The foundation of this study is a collection made by the writer in 1947–48 of approximately five hundred (500) plants used by the Pinatubo Negritos in their everyday life activities. This study would not have been possible without the fullest cooperation of Dr. Eduardo Quisumbing, Director, Philippine National Museum, and Dr. E. D. Merrill, Professor Emeritus, Harvard University, who gave freely of their time in establishing the binomial determination of each plant, as well as, Dr. Edwin B. Copeland who identified all of the ferns. In addition to the full support of this study by the National Museum, aid was received through Professor H. H. Bartlett, Director, Botanical Gardens, University of Michigan, with my appointment as one-third time collaborator in Philippine research. Professor H. Otley Beyer, as always, has guided my field work with his

undergone tremendous cultural change, and it is necessary, in part, to reconstruct their past cultural activities through statements of the oldest informants. In addition, the Philippine pygmies have borrowed extensively from the culture of the surrounding people—in the case of the Pinatubo pygmies, the Sambal people—and it is difficult to define which elements of their culture or cultures might be unique without a tremendous body of readily available comparative data.[2] Unfortunately, very little research has been completed among the Philippine Negritos. Most of the groups have never been studied thoroughly, and consequently few detailed and critical papers are available for comparative purposes.[3]

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tremendous knowledge of and experience in Philippine ethnology. I am also in debt to Dr. Fred Eggan and Dr. Karl Pelzer, visiting Fulbright professors, and Harold Conklin, for criticisms and suggestions. The field work among the Pinatubo pygmies, which lasted for more than one year, was greatly facilitated through the help of Mr. Domiciano Darum, Principal of the Villar Settlement Farm School for the Negritos, and by the help of many other provincial officials. Mr. Hospicio Doble of Botolan, Zambales, an able lay historian, aided me continually by pointing out the similarities or differences between the cultures of the Sambal lowlanders, and the Pinatubo Negritos. Finally, I must thank my many Negrito friends, particularly, Emilio Balintay, Jacinto Balintay, Magno Balintay, Inong Balintay, Salvador Bolunhigan, Ciriaco Dolandolan and his father Atilano, and numerous others, who willingly aided me in the field work.

[2] The best general reference concerning the distribution and population of Negrito groups in the Philippine is still H. Otley Beyer's, Population of the Philippine Islands in (1916) 56–60. Father Morice Vanoverbergh in the Negritos of Eastern Luzon (1938) has reviewed Beyer's data as to the distribution and population of the Negritos of Luzon, but has completely ignored the "Dumagat" problem by calling all of the "Negroid" types on the east coast of Luzon, Negritos. I pursued general ethnographic investigation among the Dumagat groups on Polillo Island for five months, 1948–49, and during my work among the Ipagi Egongot, 1948, contacted numerous Dumagat groups in the Baler and Casiguran areas of Quezon Province. I have also reached a tentative conclusion, earlier stated by Beyer in the citation above, that the Dumagat, at least specific groups, are not pygmy "Negroids" (that is, Negritos), but remnants of a taller, "Papuan-like," sea-migrating "Negroid," and represent a racial intrusion into the Philippines distinct from the pygmies. This problem is posed herein not to stimulate controversy, but to illustrate how very little systematic anthropological research has been accomplished among the Philippine "Negroid" groups, and to plea for a greater interest on the part of ethnographers in these challenging Philippine anthropological problems.

[3] Heine-Goldern, Robert. Research on Southeast Asia: Problems and suggestions. American Anthropologist, n. s. 48 (1946) 162.

The great changes which have occurred in the ways-of-life of many of the Philippine pygmies can be quickly seen by examining their present economic behavior. The Negritos of the Zambales range, Luzon, with whom I have worked—including the pygmies of Bataan, Pampanga, Tarlac, and Zambales provinces—are today all shifting cultivators,[4] tilling and planting the soil with dibbles and/or bolos into small gardens and "kaingins," or in a very few instances, are settled cultivators. All derive their basic subsistence from three introduced New World crops: the sweet potato, the cassava, and corn! Moreover, other phases of their culture show many evidences of recent acculturation—the use of manufactured cloth, lowland tools, the invasion of Christian ideology—which all tend to disguise their older habits, and their former dependency upon nature for the fulfilment of wants. Despite this situation, the Pinatubo Negritos of Zambales retain an amazingly intimate knowledge of useful plants. The past war (1941–1945) helped to stimulate a revival of the uses of vegetation, for it was difficult, almost impossible, for them to obtain lowland[5] merchandise, and in a few instances even provoked new uses for plants.

This persistent use of plants by the Pinatubo Negritos suggest the basic problem attacked in this primarily ethnobotanical study, namely: *what are/were the plants in the environment of the Pinatubo pygmies which could have yielded the necessities and wants of life—food, tools, clothing, medicines, shelter, etc.—when recently introduced plants (as well as tools, ideas, etc.) are abstracted?* A description of the uses of these plants in most of their life activities will add considerably to our knowledge of what the behavior of the Pinatubo Negritos was like (as well as that of other pygmy groups living under similar floristic conditions), when they were exclusively hunters and food gatherers, and survived by means of an extensive use of native vegetation. By using this methodology, diagnostic elements of Negrito culture(s) might be illuminated.

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[4] *Cf.*, Pelzer, Karl J. Pioneer settlement in the Asiatic tropics. Ameri. Geog. Soc. N. Y. (1945) 3–9.

[5] The term "lowland" is used herein to define generally the people and cultures of the Christian Filipino surrounding the Pinatubo Negritos—the Sambal and Ilokano to the west, the Tagalog to the south, and the Pampangan to the east—who are all settled agriculturists inhabiting the coastal areas and non-mountainous, lowland regions, and who have been more influenced by Spanish and American cultures.

Historical–functional descriptions.—The ethnobotanical data in the body of this monograph, as well as the data on the material culture, has been arranged according to the use of the many plants by the Pinatubo Negritos, for example: wild food plants, plants used in making bark cloth, and so forth. This arrangement was necessary in order to give an organic description of the uses and meanings of the plants to the Negritos. It is not sufficient to merely state that a particular plant is burned under the dwelling to drive away the malign spirits without first discussing, even briefly, their belief in spirits. In a number of instances, the material is arranged entirely according to the conceptualizations of the Pinatubo pygmies, as in the discussion of medicinal plants and practices. The Negritos recognize types of sickness which are accounted for in their theories of disease and beliefs, and it would be highly artificial, almost impossible, to categorize and describe these sicknesses in terms of Western medical theories of disease and nomenclature. For example, a Negrito may be *timbí'*, an illness caused by having been struck by thunder, and may employ specific medicinal plants to effect a cure. These medicinal plants are enumerated, and their use described, under the sub-subject, *timbí'*.

Utilizing the ethnobotanical evidences, comparative ethnographic data, and statements of the oldest informants, each subject is treated historically (temporally) in an attempt to abstract those elements of culture which are obviously borrowed, that is, recently acquired and which do not appear to be functionally a part of their traditional behavior. Necessarily, the introduced flora is treated first. By means of this temporal-functional treatment, a clearer picture is formed of the older trait-complexes of the Pinatubo Negritos. Modern forces of social change—tools, ideas, etc.—are also included in the discussions in order to describe how their culture is being continually reshaped, and to illuminate the present patterns of cultural resistance. The overall organization of this paper has, of course, been greatly influenced by the plant collection *per se*. Where important data on material culture or institutions have been omitted, or treated lightly, it is due to the fact that the plants related to these particular activities were not collected and identified.

The body of this monograph also includes some phenological data—the seasonal appearance of important fruits, tubers, etc.—arranged by the pygmies' lunar calendar in order to give a year-'round picture of available plant foods.

Comparative study of plant names.—All Philippine people employ a large number of plants for everyday needs, and all have specific names[6] for these plants, or local descriptive plant names coined by this or that group. In many instances when the plant names of a number of dialects are compared, they have a surprising generic similarity. Utilizing the data available, the writer has attempted to find cognates for the more than six hundred plant names employed by the Pinatubo Negritos with other Philippine dialects. The local plant names used in this comparative analysis have been derived largely from Merrill's, An enumeration of Philippine flowering plants,[7] and unless otherwise noted, are from this source. Other plant names recorded in the Sambal of the Christian lowlanders of the Municipality of Botolan, Zambales, in the Ipági Egóngot (Ilongot) dialect of Quezon Province, and in the Dumagat and Tagalog dialects of Polillo Island, Quezon Province—most of which are not found in Merrill's work—were obtained by the writer while pursuing ethnographic and ethnobotanical investigations among these people.

Cognates discovered for plant names used by the Pinatubo pygmies are introduced when a particular plant is first discussed, and are not repeated when the same plant appears again in the manuscript under a different use. The following abbreviations are used throughout this study for the many Philippine dialects cited, and have been derived, with some modifications, from abbreviations also used by Merrill[8]:

Ap.	Apáyao	Iv.	Ivatán
Bag.	Bagóbo	Klg.	Kalínga
Bik.	Bíkol	Lan.	Lánao
Bis.	Bisáya	Mag.	Magindanáo
Ak.-Bis.	Aklán Bisáya	Mand.	Mandáya
C.-Bis.	Cebu Bisáya	Mbo.	Manóbo
H.-Bis.	Hiligáynon Bisáya	Pang.	Pangasinán
P.-Bis.	Panáy Bisáya	Pamp.	Pampángan
S-L.-Bis.	Samar-Leyte Bisáya	Sbl.	Sambál
Bon.	Bontók	Bot.-Sbl.	Botólan-Sambál

[6] By a "specific" plant name, I mean a name which has no derived meaning to the people, is apparently not coined, and is only the name of a plant.

[7] Merrill, E. D. An enumeration of Philippine flowering plants. Manila, Bureau of Science (1922–26) 4 vols. Unfortunately, as Merrill notes, the Negrito plant names given in these volumes have little comparative value, and were not utilized in this study, for the specific groups from which these plant names were obtained were not known to Merrill, and could not be included in the enumeration.

[8] *Ibid.*, pp. 28–29.

D.-Neg.	Negrito (Dinalupíhan area, Bataan)	Iba-Sbl.	Iba-Sambál
		Pint.-Sbl.	Pintúbo-Sambál (Negrito)
Dum.	Dumágat (Polillo Is.)	Sp.	Spanish (corrupted)
Egn.	Ipági Egóngot	Sul.	Súlu
Gad.	Gaddáng	Sub.	Subánon
Han.	Hanunóo (Mangyan)	Tag.	Tagalog
		P.-Tag.	Tagalog (Polillo Is.)
Ibn.	Ibanág		
If.	Ifugáo	Tagb.	Tagbánuwa
Ilk.	Ilóko	Ting.	Tinggián
Ig.	Igorot		

The plant names used by the Pinatubo Negritos which I have been unable to relate are set forth in Appendix I.

The etymology of many other important terms, such as "arrow," employed by the Pinatubo Negritos, has also been traced, and this comparative data is set forth in footnotes. We shall see that a number of highly interesting words employed by these pygmies have their origin with plant names found in other dialects. As well as in relationships which are suggested by the physical characteristics of particular plants.

Comparative study of plant uses.—Everywhere in the Philippines particular plants have specific uses; for example, the widespread use of the rhizomes of some terrestial orchids for paste, or the application of the leaves of certain trees to the forehead and temples as a poultice for headaches. Undoubtedly, specific uses for plants—the plants also having specific names—were diffused throughout the Philippines accompanying waves of cultural intrusions. This, as well as prolonged cultural contacts, explains the widespread similarities of plant names in the Philippines, which though spoken in widely scattered areas, have only minor phonetic variations.[9] Drawing heavily upon Brown's useful plants of the Philippines, and upon personal conversations with Professor M. D. Sulit, botanist of the Philippine National Museum, who has a vast knowledge of Philippine plants and their uses, the writer has related the usages of some of the plants employed by the Pinatubo Negritos

[9] *Cf.*, Bartlett, H. H. The geographic distribution, migration, and dialectical mutation of certain plant names in the Philippines and Netherlands India, with special reference to the materia medica of a Mangyan mediquillo. Proceedings of the Sixth Pacific Science Congress 4 (1940) 86 ff.

with other Philippine people.[10] It is very likely that some of the plants utilized by the Pinatubo pygmies, the methods of use, as well as the absence of use of very common plants, are characteristic of Philippine pygmy groups. However, the specific definition of these culture traits as Negrito in origin, as suggested by this study, must await for more thorough comparative studies when additional data are available.

Appendices.—In Appendix I there appears an alphabetized list of the plant names with their binomial determinations used by the Pinatubo Negritos which I have been unable to relate to plant names found in other dialects in the Philippines. These unrelated names form only about 12 per cent of all plant names employed by the Pinatubo pygmies. These plant names are not, insofar as I can determine, autochthonous terms, that is, locally coined plant names, and deserve further comparison when additional ethnobotanical data are available.

In addition to having an amazing knowledge of plants and their uses, the Pinatubo pygmies employ nearly one hundred terms in describing the parts and characteristics of plants. I have also attempted to obtain cognates for these words using various other Philippine dialects for comparison, that is, in instances in which the words are not the same as in Botolan-Sambal. A few of these terms have not been related, and when more data are on hand, warrant further comparative study. This enumeration of "botanical nomenclature" is set forth in appendix II.

A comparison of the hundreds of other Negrito terms included herein—an inquiry into their historical relationships—will be set forth in dictionary form in a future study.

The Index to this volume of the Philippine Journal of Science will include all of the more than six hundred plant names employed by the Pinatubo Negritos, as well as the scientific names of these plants, and will greatly facilitate the use of this monograph for comparative purposes.

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[10] Brown, W. H. Useful plants of the Philippines. Manila, Dept. Agric. and Nat. Res. Tech. Bull. No. 10 (1941–46) 3 vols. Unfortunately, Brown and other men who have worked in the field of Philippine ethnobotany have not distinguished which group or groups of people use a specific plant, for always they were concerned with the commercial or economic values of the plant, and not its ethnographic importance.

It must not be assumed from the above discussion of the problems and methods that the goal of this manuscript was a comparative study of the ethnobotany and material culture of the Philippine pygmies. This field is still virgin, and such a project is presently impossible. Rather, in addition to the objectives noted above, it is the aim of this monograph to record specific ethnobotanical and ethnographic data which can be drawn upon by others who in the future will do ethnological synthesis and to salvage valuable anthropological data from a pygmy group which is fast losing its cultural identity.

THE PHONETIC KEY

The Pinatubo Negritos speak a dialectic of Sambal.[11] In fact, their language is a sub-dialect of Botolan-Sambal which, except for the pygmy groups in the Zambales Range, is largely spoken by the Christian lowlanders within the Municipality of Botolan, Zambales. To the north of Botolan, principally in the Municipalities of Iba, Santa Cruz, and Bolinao, other distinct variations of Sambal occur, and immediately to the south in the Municipality of Cabangan, a slight difference exists. At one time, the "Botolan-Sambal" extended throughout southern Zambales and Bataan, but now survives in these areas only among the various Negrito groups. The southern part of Zambales, from the towns of San Felipe to San Marcelino (see map), is at present composed largely of Ilóko and in the extreme south of Zambales, as well, as in Bataan, Tagalog speakers predominate.

All of the pygmies in the southern portion of the Zambales Range with whom I am familiar—including the Negritos of Bataan, the Negritos in the Floridablanca and Fort Stotsenburg areas of Pampanga, and the Negritos in the Bamban[12] area of Tarlac—speak slight variations of Botolan-Sambal. Most individuals in these various Negrito groups also speak other dialects, depending upon the intensity of their personal contacts with their Christian neighbors. Thus, in addition to

[11] *Sambál* is the proper term for the language, as well as the people, of *Sambáli* (Zambales), and the former term is used in this monograph. There is no voiced sibilant in Sambal; however, the Spanish orthography of "Zambales" is politically established and a correction at present to *Sambáli* would only lead to confusion.

[12] Many place names throughout the Philippines are the names for common plants, as in this instance, *bambán* [*Donax cannaeformis* (Forst. f.) K. Schum.].

speaking forms of Botolan-Sambal, the Negritos of Bataan now speak Tagalog, the Negritos of Pampanga, Kapampángan and/or Tagalog, and the Negritos in the San Marcelino Municipality of southern Zambales, Ilóko. In the Pinatubo area, particularly among the men who frequently travel great distances, it is not unusual to encounter individuals who speak Ilóko and/or Kapampángan, in addition to their own dialect. However, very few of the Pinatubo pygmies know Tagalog, and many individuals among some of the more remote groups know only their own variation of Botolan-Sambal. The language pattern in the province of Zambales is very complex.

The orthography used herein is simplified following Tagalog, the Philippine National Language. Initial glottal stops and glottal stops between vowel sequences are not written. Actually there are no words in Pinatubo Sambal which begin with a vowel and there are no vowel clusters. Due to the limitations of Pi-Matrices, all of the symbols of The International Phonetic Alphabet could not be followed. The variations from this system, however, are illustrated below.

I. Vowels:	English examples	Sambal examples	
a	f*a*ther	*áwak*	(waist)
i	machine	*díla'*	(tongue)
I	s*i*t	*lanI'n*	(water)
u	r*u*de	*lúpah*	(face)
o	h*o*pe	*pokkó*	(abdomen)
ü—a mean-mid, central, unrounded vowel in which the lips are spread and drawn back; not found in English		*lüóy*	(neck)
e—this sound appears only in loan terms, particularly, in words from Spanish as Santa Fe		*pisté*	(plague)

II. Diphthongs:			
ay	a*i*sle	*pílay*	(lame)
aw	h*ow*	*yaw*	(arrow)
oy	b*oy*	*ungóy*	(mucus)
iw	f*ew*	*kíniw*	(vine)

III. Consonants:

b, d, k, l, m, n, p, r, s, t, w, y—as in English; the sibilant appears only in recent loan words which have not as yet shifted to /h/

g—*goat*	*gabót*	(liar)
ng—as in sin*g*er; the sound as in "finger" is recorded as */ngg/*; the Spanish /ñg/ is superfluous	*bángil* *ipónggo*	(eye tooth) (to wrap)
h—initially as in the English "halt"	*hábot* *gihigíh*	(hair) (a tree)
č—as in the English "church"; heard only among specific pygmy groups where it replaces a /t/	*gunčing*	(scissors)
j—as in the English "jar"; a relatively rare sound among the Pinatubo pygmies	*bulungú-jong*	(flute)
š—as in the English "shoe"; a rare sound, and found only in loan words	*akáša*	(a tree)

IV. Diacritical Marks: ("v" = vowel; "c" = consonant)

'—*stress;* over first vowel of the accented syllable	*balakáng*	(hip)
v'—*glottal stop* following a vowel; indicated by a raised comma; a consonant in value	*nóka'*	(abscess)
c—*glottal stop* or *voice hiatus* following a consonant; indicated by a hyphen	*pag-óng*	(turtle)
- a hyphen also used when compounding word base elements (common in plant names)	*állo-állo*	(daily)
v:—*unusual vowel length;* indicated by a colon	*tú:k*	(ear)
c^{w}c—*weakened vowel;* indicated by a raised character	*dam^{w}wag*	(water buffalo)

HABITAT OF THE PINATUBO NEGRITOS

The pygmies living on the western and northwestern lower slopes of Mt. Pinatubo (5,284′), one of the highest and most striking mountains in the entire Zambales Range, call themselves *Áyta* or *Páan Pinatúbo Áyta,* that is, the "people (*áyta*) living on the thigh (*páa*) of Mt. Pinatubo." In this monograph, as noted, they are referred to as the Pinatubo Negritos.[14] Considerable racial mixture has occurred within the Pinatubo area between the Sambal—the latter, according to conversations I have had with Professor Beyer, are basically "Indonesian A"—and the pygmies. Many individuals, culturally identified with the Negritos, vary considerably from the pygmy type (see Plate 3, figs. 1 and 3). However, the Pinatubo population still maintains to a large extent the morphological charac-

[14] The term *Pinatúbo* has undoubtedly been derived from the word-base *túbo'*, meaning in general, "grow" or "originated from," for as the Pinatubo pygmies remark, all of the rivers which are necessary for life and growth have their sources on Mt. Pinatubo.

teristics of the Asiatic Negrito; woolly hair, very short in stature, a low-bridged, concave nose with flaring alæ, nostrils frontally visible, wide-set eyes in a round face, dark pigmentation of eyes and hair, and moderate to very dark brown, skin color.

Within the Pinatubo area, that is, on the western and northwestern talus slopes of Mt. Pinatubo, there are, roughly speaking, two groups of Negritos: (1) "deep," more isolated, groups living higher on the slopes of Mt. Pinatubo, but never higher than 1,500′, and (2) more acculturated groups living on the lowest slopes in the grasslands and secondary forest areas. The location of their "villages," as well as the area of intensive ethnographic and ethnobotanical investigation, is shown on the following map (Plate 1).

The deeper Negritos live adjacent to the primary forests, and through the practice of burning to clear the slopes for planting, as well as for hunting, are continually causing the forest lines to recede. Even among these deeper Negritos, it must be emphasized, not a single group could be called true forest dwellers!

The more acculturated pygmies—typified by the groups in and around Villar—live on the many finger-like, grass table lands which have been formed by the numerous streams, all having their sources on Mt. Pinatubo, slashing down through the lower elevations (see Plate 3, figs. 1, 2, and 3). The only *Dipterocarp* forests surviving in this latter area are found in the deep ravines. Undoubtedly the whole region was once heavily forested, but due to the continual burning by the Negritos, the tough weeds and grasses—particularly, *yábot*, *Imperata cylindrica* (Linn.) Beauv. and *Imperata exaltata* Brongn., which have deep-seated perennial rhizomes, and *táib*, *Saccharum spontaneum* Linn. subsp. *indicum* Hack.—have invaded the plateaus, and have become dominant. It is interesting to note, as Merrill has shown for other areas of the Philippines, that most of the common weeds on the lowest slopes of Mt. Pinatubo have been accidentally introduced from the New World by man.[15] As we shall see later, most of these exotic weeds are now useful to the pygmies!

Second-growth forests are found on the tips of the table lands, and on many of the ravine slopes which have not been

[15] Merrill, E. D. Notes on the flora of Manila with special reference to the introduced elements. Philip. Jour. Sci. § C 7 (1912) 145.

subject to recurrent burning.[16] Fire resistant trees, such as *banayúyu, Antidesma ghæsembilla* Gaertn., and *kalibángbang, Bauhinia malabarica* Roxb., are scattered throughout the area. Characteristic of the secondary growth forests are the following small trees: *lípah, Laportea meyeniana* (Walp.) Warb., which has leaves with numerous stinging hairs, the useful *anónang, Cordia dichotoma* Forst., *áyhIp, Antidesma bunius* (Linn.) Spreng., *binúnga', Macaranga tanarius* (Linn.) Muell.-Arg., *dalúnot, Pipturus arborescens* (Link.) C. B. Rob., and others. The common guava of American origin, *Psidium guajava* Linn., called *bayába* by the Negritos, is so very common that it appears to be a part of the native flora. Conspicuous everywhere are many species of the wild fig: *awíli', Ficus hauili* Blco., *áymIt, Ficus minahassæ* (Teysm. and De Vr.) Miq., *tübóy, Ficus nota* (Blco.) Merr., *tiplí', Ficus odorata* (Blco.) Merr., *kayáhan, Ficus variegata,,* and others. This common genus, as we shall see later, is of great importance to the Pinatubo pygmies.

The most characteristic flora of the entire Pinatubo area is the banana which occurs in tremendous stands; the wild varieties of *Musa errans* (Blco.) Teodoro, and the semicultivated varieties of *Musa sapientum* Linn. (see Plate 2, fig. 1). Huge clumps of bamboo, *kawáyan-mantúg, Bambusa spinosa* Blm., and *kawáyan-kilíng, Bambusa vulgaris* Schrad., which are extremely useful to the Negritos, dot the rims of the plateaus, and impregnable thickets of smaller, climbing bamboos—as well as many rattans—are found on most slopes. At lower altitudes in the stream beds, the conifer-like *agóho, Casuarina equisetifolia* Linn., the shrub *liúhin-laním, Homonoia riparia* Lour., and the tall grasses *tambó', Phragmites valgaris* (Lam.) Trin., and *Phragmites karka* (Retz.) Trin., are very common.

In general, as is clearly brought forth in the body of this monograph, the plants utilized by the Pinatubo Negritos are found at low and medium altitudes, and the plants which are found in the original high tropical forests are relatively unkown to them. This would suggest that their former habitat, as now, was at low or still lower altitudes in open areas adjacent to the primeval forests!

It is significant to note that the environment of the Pinatubo Negritos is not an immutable, natural phenomenon but is, in

[16] *Cf.*, Brown, W. H. and D. M. Mathews. Philippine dipterocarp forests. Philip. Jour. Sci. § A 9 (1914) 413, for discussions of Philippine secondary growth forests such as are found in the Pinatubo area.

part, man made, and has been altered considerably. Insofar as possible, attempts have been made in this monograph to keep the ecological-historical factors in mind, for the present threshold of Negrito culture is the product of many environmental adjustments.

A BRIEF, INTRODUCTORY DISCUSSION OF THE CULTURE OF THE PINATUBO NEGRITOS[17]

Basically the culture of all of the scattered pygmy groups in the Pinatubo area is the same, and they are closely related—culturally and linguistically—to the Sambal population in the Municipality of Botolan, Zambales.[18] Nevertheless, cultural differences between the pygmies and the lowland Sambal—as well as between other surrounding Christian groups—do exist, and a few of these differences related to ethnobotany are discussed here, and later in the body of this manuscript under specific topics.

Even though the Negritos give the appearance of being settled cultivators, they rarely live in a specific area for more than one year. This is determined, in part, by the nature of their planting activities, the "kaingin" system. The pygmies find a steep slope relatively free of large trees and tough grasses,[19] clear the heavy growth with bolos, and then burn the slope. Of course, soil depletion takes place quickly, which they realize, but not with the rapidity with which they move. Frequently there may be good slopes for planting near their old living sites, which could be used without shifting their dwellings, but the pygmy groups may move many kilometers away into an entirely new area.

In some instances, the shift to a new area has been stimulated by the presence of frequent sickness in the old site, and if a

[17] Another monograph is being prepared by the writer which will treat in detail the contemporary institutions of the Pinatubo pygmies, as well as a dictionary and comparative study of their dialect.

[18] Where the data presented in this manuscript do not illuminate "real" Negrito culture, they do give a valuable picture of older Sambal institutions. Under the impact of European civilizations, much of the indigenous Sambal culture has disappeared, but has survived in modified form among the more isolated Pinatubo pygmies. We know even less about the Sambal than the Zambales Negritos.

[19] Some of the Pinatubo Negritos are prepared to be settled agriculturists, but the absence and difficulty of procuring the water buffalo makes it almost impossible for them to work the toughly grassed table lands which cannot be effectively cleared by burning.

death occurred, the dwelling will usually (always in the past) be abandoned immediately. When this occurs, the clearings may also be abandoned, but normally the Negrito will return to harvest the crops which have not been destroyed by the birds and animals. Specific areas may become uninhabitable through the invasion of an evil spirit or spirits. One extensive region on the lower and eastern slopes of Mt. Liwitan, formerly good for clearings, hunting, and for gathering forest products, is now the sole property of the huge and evil spirit, *tulŭng* (*tuwŭng* in Bot.-Sbl.).[20] A few years ago a group of Negritos from Villar had been gathering rattan in this area, when they noticed that many of these plants, and even large trees, had been violently torn from the ground. Later, they heard loud, strange noises, and fled in terror. Today, no Negrito would wittingly enter this region.

Particular slopes on Mt. Pinatubo are very good for clearings but are the property of powerful, though usually good, spirits. It is from these areas that the Negrito mediums and *baliyan* attract and obtain their personal tutelaries. The pygmies may travel in these areas, but the whole natural environment is tabu. Not a single object—a plant, stone, bird, animal, etc.—can be removed or destroyed! Needless to say, I made no ethnobotanical collections in these restricted regions.

Frequently, the mobility of the Pinatubo pygmies appears to be the product of an attitude; a desire to move and keep moving. This traditional feeling appears in their few songs and in their seeming fear of the modern responsibilities of citizenship, taxation, and governmental controls. Numerous statements that I have heard clearly expressed as a general attitude their dislike for really permanent settlements. Certainly, their continual movement is not only, or even primarily, a result of their economic activities. Rather, many social forces, in addition to their economic behavior, have produced the semi-sedentary habits of the Pinatubo pygmies.[21] This persistent mobility markedly distinguishes the Pinatubo Negrito from the settled lowlanders.

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[20] This spirit is usually described as being horse-like, but having clawed feet, long hair, and very large testicles. Negritos encountering the *tulŭng* disappear, for they are eaten.

[21] Other marginal people, such as the Ipági Egóngot (Ilongot) of Quezon Province, are also shifting cultivators employing practically the same tools and plants as the Pinatubo Negrito in their economic activities, but they lead a sedentary life, i. e., they do not shift their villages.

Another characteristic of Negrito life, a characteristic which strikingly demarcates them from the surrounding Christian lowlanders, is their inexhaustible knowledge of the plant and animal kingdoms. This lore includes not only a specific recognition of a phenomenal number of plants, birds, animals, and insects, but also includes a knowledge of the habits and behavior of each. This inclusive knowledge of nature is, of course, a product of their way-of-life; continual hunting, mobility, dependency upon vegetation, as well as a survival of their historical associations. The Negrito is an intrinsic part of his environment, and what is still more important, continually studies his surroundings. Many times I have seen a Negrito, who, when not being certain of the identification of a particular plant, will taste the fruit, smell the leaves, break and examine the stem, comment upon its habitat, and only after all of this, pronounce whether he did nor did not know the plant.

In addition, the intimate familiarity of the Negrito with nature is the result of a thorough and sensitive ecological awareness. Many plants have no direct use or value in themselves, but are important to the Negritos because of the relationships of the plant with the animal and insect world. The fruits of some trees are only eaten by birds, but are still very important to the pygmies, for it is in or near these that bird blinds are built. These particular plants have vernacular names, and meaning to the Negrito, due primarily to this plant-bird association. Specific grasses have local descriptive names only because the pygmies know that they are being eaten by the deer and wild pigs; for example, *daúmo-uwíha, Eragrostis amabilis* (Linn.) W. and A., the "grass of the deer." One weed, *lámon-pinatúbo, Lindernia* sp., which is found along the edges of streams, has no use but has the descriptive name, "Pintúbo-grass," for the Negrito believes that it originally came from the higher slopes of Mt. Pinatubo, and was carried by the streams and scattered thoughout the entire Pinatubo area.

The acute observation of the pygmies and their awareness of the interrelationships between the plant and animal life giving them an ecological picture of their environment, is strikingly pointed out by their discussions of the living habits of bats. The *tididín* lives on the dry leaves of palms, the *dikidík* on the underside of the leaves of the wild banana, the *litlít* in bamboo clumps, the *kolumbóy* in holes in trees, the *konanabá* in dark thickets, and so forth. In this manner, the Pinatubo Negrito can distinguish the habits of more than

15 species of bats. Of course, the classification of bats, as well as of insects, birds, animals, fish, and plants, is determined primarily by their actual physical differences and/or similarities.

Most Negrito men can with ease enumerate the specific or descriptive names of at least 450 plants, 75 birds, most of the snakes, fish, insects, and animals, and of even 20 species of ants.[22] Moreover, each Negrito man can give a description of the colors, habits, foods, calls, etc., of all of the animal, insect, and bird life known to him. An unusually intelligent and observant individual, such as my close friend *Bakiyó'*, can give even more natural history information, and the botanical knowledge of the *mananámbal*, the "medicine men and women" who use plants constantly in their practice, is truly astounding.[23]

The scattered villages of the Pinatubo Negritos rarely contain more than three or four households totalling 20 to 40 individuals, and there is no community life such as is found among the lowland people (see Plate 4, fig. 1). It is this factor which makes the study of Negrito groups relatively difficult. Life-cycle activities and important rituals may occur in widely separated places; for example, I would receive a report that a marriage was to take place, but after a hurried day's hike I would arrive too late to witness the ceremony. There is no overall political organization or even strong leadership, and each village or extended family is an independent communal grouping. Important decisions are made by the elder members of each family grouping. This factor alone has greatly handicapped attempts by the Philippine government to control and educate these people.

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[22] Fourteen of the twenty ants, called generically *áya'*, and having specific or descriptive names, were identified by Professor J. W. Chapman of Silliman University, Dumaguete, Negros, from a collection made by the writer at Villar, Zambales: *antík* (*Odontomachus infandus* Fr. Smith); *alilípak* (*Solebopsis geminata* var. *rufa* Jerdon); *alidákdak* (*Odontomachus hæmatoda* Linne); *bukátot* (*Polyrhachis* (*Myrmhopla*) *argentea* Emery); *kalibóyboy* (*Diacamma rugosum* subsp. *geometricum* Fr. Smith, and *Diacamma rugosum* subsp. *vagans* Fr. Smith); *kayúman-yúman* [*Paratrechina* (*Paratrechina*) *longicornis* Latreille]; *húbok* (*Œcophylla smaragdina* Fabricius); *híkid-híkid* (*Crematosgaster* sp.); *galúnggahing* (*Anoplolepis longipes* Jerdon); *galúnggahíng-nangítit* (*Iridomyrmex anceps* Roger); *mangán-pulót* (*Camponotus* sp.); *maluntón-bánga'* (*Polyrhachis* (*Myrma*) *murina* Emery); *púkin-lamídan* [*Leptogenys* (*Lobpelta*) *dimunita* var. *opacinodis* Emery]; and *tamúmo* [*Polyrhachis* (*Myrmphola*) *dives Fr. Smith*]. The larva of the *húbok* is eaten.

[23] *Mananámbal* is from *támbal*, "medicine" with an occupational prefix. *Tambalan* in Leyte-Bisayan also means "medicine man" or "herbolario."

Each village has some individuality in the types of dwellings, staple foods, and degrees of cultural change. For example, in the Yamót area (see Plate 1) the villages obtain their entire water supply from trees and vines, particularly, the wild fig *tübóy, Ficus nota* (Blco.) Merr. A cut is made in the trunk of this tree, and a long bamboo tube, the *lúhob*,[24] is propped against the tree with the lip of the tube just below the cut (see Plate 2, fig. 2). A large leaf is placed above the cut and the mouth of the tube to keep out foreign matter. The water from the tree drips into the tube, and when the tube is filled, it is removed and utilized. These cuts are enlarged at intervals to maintain a steady flow of pure, fresh water. A few trees prepared in this manner will give sufficient water for an entire village, that is, for cooking, and drinking, for a Negrito will rarely take a bath. It is a widespread belief among the Pinatubo pygmies that bathing causes sickness, and that dirt protects the body. The Yamót area is relatively high on the middle slopes of Mt. Pinatubo, and there are no handy springs or streams. It would be almost impossible for the Negritos to live in this region, if it were not for the presence of these specific plants yielding water. It is conditions such as these which often give marked individuality to the various Negrito villages.

As noted, a detailed description of the social organization and institutional characteristics of the Pinatubo Negrito will appear elsewhere; nevertheless, a few general remarks about marriage are specifically included here, because this institution has its functional relationships in nearly all spheres of Negrito life and is an important structural factor. The Pinatubo pygmies still practice some polygamy (plurality of wives) if a man can accumulate sufficient *bandí,* that is, the "bride price." Marriages are contracted between the parents or guardians, usually when the children are young (even in the womb), and the payment to the parents and relatives of the girl is traditionally established for any type of situation which may arise; for example, if one of the party dies, if the contract is broken, and so forth. Failure on the part of the young man and his family to satisfy the requirements of the bride price and the elopment of a boy with a girl who has already been

[24] Among the Bataan and Pampangan Negrito, this water tube is called *páyung,* but among the Pinatubo Negrito this term, or *tabübüb,* designates a shorter water tube. In lowland Zambales, the word *lúhob* is not known, and the term *bayüngyüng* used for bamboo water tubes.

contracted with another boy, are the principal causes of trouble between the Negrito families and groups. The accumulation of the *bandí*, usually arrows, bows, bolos, cloth, homemade shotguns, and money, is the primary concern of the young man, his family, and relatives, and the orphan, or any individual who through selfishness, has antagonized his kin, faces many difficulties. Cousin marriages are usual, and first cousins can be married when a simple ritual has been accomplished to "separate the blood." Divorce is established when the *bandí* has been returned, that is, should the woman be in error, or by mere physical separation and forfeiture of the bride price, should the man be in error.

A FOLK TALE: "THE ORIGIN OF POISONOUS PLANTS"

The Pinatubo pygmies live for the present, and there is little concern with the past or future. This may to some extent explain the dirth of folk tales among them; however, a few plants have associated stories which explain their peculiar properties (e. g., the "pitcher plants," *Nepenthes* spp.). These specific tales are set forth in the body of the manuscript in the discussion of the plants concerned. In addition, I obtained one story which explains why important plants are now poisonous, full of seeds, etc., but which may be used for food if properly prepared. The story is important to this study, for it notes that the Pinatubo Negritos have a traditional belief that they were once exclusively food gatherers and hunters. The tale was recorded and is set forth in Pinatubo-Sambal and the English translation is free.

Hin únay pana'ón hay táo ay áhI' nin ampananáman alwán biláng hapáüg. Ayn hilan tandá' nu alwán mangáho ya ayn nin ambawúnin.

In the first times, the people were not planting, not like now. They knew only how to hunt, and they had no provisions (that is, they had no sweet potatoes or corn to carry with them as they hunted).

Kaganawán la ay anpahimála taná ha lálI' ta hapáy kalót. Ya maádi nin kabiyayáIn ay ayn makahída'.

They were all depending upon the forest while hunting for the *kalót* (*Dioscorea hispida* Dennst.). It could be eaten then without preparation, for it would not destroy.

Nu mangáho hiláy na pagpaibatán nin manlík nin naúto' ya amúkaw. Hay amúkaw ay ayn but-ó, bahtá nangán nu naúto'. Nu nailú ay ialáng.

When they were hunting, they also looked for the ripe wild banana (the *amúkaw*). The wild banana had no seeds then, and if ripe, just eaten. If green, it was roasted.

Aghiláy na nin makaáhoáho nin pangaláng la nin liwŭt, kalót, bukyót, duwíyan. Agláy nan tandá' ya pangáho la nin kaganawán ta pagbuhóybuhóy lay na. Nu makatumpák hilá nin búngan káyu ay kakolán-dawitán lay napón. Hay babái ay mamót ha púon ta mangán.

They did not hunt continuously, because, they were always roasting the *liwŭt*,[25] *the kalót, bukyó,* and *duwíyan* (*Dioscorea* spp.). They did not hunt well, for they were always satisfied. If they (the men) found the fruit of trees, they would climb from branch to branch. The women would merely pick (the fruit) from under the trees to eat.

Makatpíl ha makó hilán mangáho ay habaytóy nay gawá' lan állo-állo!

Every time they went to hunt, their daily activities were like this!

Hiná tandaán ya gawá' la ay namaháng ya pinagkapuón la ta ha ayn hiláy na nin angkagawá'. Nu alwán mangán büngát ha pangahówan.

When their leader understood what they were doing, he was angry, for now they were only eating while at the hunting place.

Hapáüg impakítutól na ha aníto ya nu mangyádi ay pagkatutól na hi ápon namalyádi ta hubágin ya kaganawán nin angkákabíyay ha lálI' ta imún makatandá' ya táo-táo nin magtrabáho.

Then their leader talked to the spirits to see if they would talk to *namalyádi* (the most powerful spirit) to see if he would change all of the products of the forest, and the people would learn how to work (and hunt properly).

Hapáüg nin natandaán ni ápon namalyádi ay habaytó bay ya ginawá' na ya hinúbag nay kaganawán!

Now *namalyádi* understood, and that is what he did. He changed all of the forest products!

Hiláy táo-táo ay aghilá ampintóo nin hinúbag ya tanáman. Hapáüg büngát lan kinwáy kalót ta inbŭngoy. Anyáman nangyádi kollá anák matuán táo ay katugikán nin nanhúka, baná ha aghilá nin ampintóo ha inbalíta kollá. Hapáüg main nan ampikamatí nin naílo'. Hilá ay inaámpulingún aná nin maúbo nin matí ya táo.

The people did not believe that the plants had been changed. They still gathered the *kalót,* and cooked it in the bamboo cooking tube. What happened to the children and the old people was that they began to vomit, because they did not believe what they had been told. Now, they began to die of the poisonous plants. Nearly all of the people were dead.

Hapáüg hin natandaán la ya kaganawán ay ampakaláson ay aghiláy na nin nagomán nin nangán nin kalót, bukyót, boy kanáyon na angkákabíyay nù aglá tandá' gawín. Hapáüg habaytí nay pinangibatán nin nagtrabáho hilá boy nagnákim anggá hapáüg.

Then the people understood that all of the forest products were poisonous, and they did not eat the *kalót, bukyót,* and other products until they had learned how to prepare them. Now, (the people) began to work, and they have good attitudes until today.

[25] The *liwŭt*, or *ílo'* as it is more commonly called, is merely the escape variety of *Phaseolus lunatus* which becomes poisonous. This plant, contrary to the Negrito's belief, was introduced by the Spaniards into the Philippines from Mexico!

THE USEFUL PLANTS

ARRANGED AND DISCUSSED BY THEIR ORDER OF HISTORICAL APPEARANCE AND FUNCTION

The exotic flora, that is, plants which were introduced into the Philippines by man, are discussed initially in the following ethnobotanical treatment. By eliminating the exotic flora, the body of this study will contain only those plants which are native, the indigenous or endemic flora, which could have been utilized by the Negritos when they first reached the Archipelago. This assumes, and there is no evidence to prove otherwise, that the Negritos were primitive food gatherers, hunters, and fishermen when they entered the Islands, and that they were not responsible for the introduction of the important economic plants.[26]

Plants of American (New World) origin are discussed first followed by the plants of historical introduction, other than from the New World, which were either purposely or accidentally disseminated by man. Finally, those plants which are believed to be of prehistoric introduction are treated at length. These latter plants are discussed under two categories; the food plants, and the non-food plants. With all of the above plants abstracted, there remains only those useful plants which are native to the Philippines, and which could have provided the Pinatubo pygmies, as well as other pygmy groups living in a similar environment under similar floristic conditions, with a greater part of their necessities and wants during the long prehistoric period.

PLANTS OF AMERICAN ORIGIN

It is noteworthy that plants of American origin, though not great in number, have had tremendous influence upon the present behavior of the Pinatubo pygmies. Some fifty New World plants were found in the Pinatubo area, and all but four of

[26] Authority for distinguishing the exotic flora, and whether a particular plant was of prehistoric or historic introduction, was obtained almost wholly from Merrill's monumental works; principally, Notes on the flora of Manila with special reference to the introduced elements. Philip. Jour. Sci. § C 7 (1912) 172 ff., and An enumeration of Philippine flowering plants. Manila, Bureau of Science (1922–26) 4 vols.

these are used in one manner or another by the Negrito.[27] The following descriptions of the uses of these exotic plants do not give us a picture of pre-Spanish Negrito life; however, they do show the changes which have occurred in the culture of the Pinatubo pygmies through the influence of recently introduced American plants, particularly the crops; and the enumeration of American plants is necessary in order to isolate those useful plants which are native (endemic or indigenous).

Kamóti. Ipomoea batatas (Linn.) Poir.

The sweet potato, still carrying the Nahuatl name, is today the single most important Negrito food. As the plant is very hardy, it is well adapted to the pygmies' semisedentary life and crude gardening techniques. The sweet potato may be planted and harvested during every month of the year, and the Pinatubo pygmies recognize at least nine (9) varieties: (1) *magbabaúkok,* (2) *inimpí,* (3) *bulukudúk,* (4) *lagúma,* (5) *kastíla,* (6) *kl'táng,* (7) *iniklóg,* (8) *púrak,* and (9) *kapangpángan.* The names of these varieties are for the most part place names, and apparently denote the areas from which the varieties originated. The sweet potato is planted by tops, *agwáy,* one hand-spread apart, that is, *miháy díngan,* and three tops are placed in each hole. The yearly subsistence value of this single food is approximately 53 per cent of their total food supply.[28]

In addition to the great importance of the tuber as a food, the young leaves of the sweet potato are a common vegetable. One variety of the sweet potato has a reddish-brown tuber and is said to be an effective medicine for dysentery. The tuber is merely eaten after boiling or roasting. It is very interesting to note, according to the Negritos, that an effective poison

[27] In 1912, Merrill noted that at least 178 species of plants had been introduced either purposely or accidentally from the New World. Over 100 of these were apparently brought between the years of 1512 and 1815 from Mexico by the Spaniards on the annual galleons. Undoubtedly, the number of American plants in the Philippines today is much larger. Merrill, E. D. Notes on the flora of Manila with special refenrece to the introduced elements. Philip. Jour. Sci. §C 7 (1912) 172 ff.

[28] Even among the Ifugao, who are famous for their rice culture, the sweet potato forms approximately 42 per cent of their annual subsistence. Barton, R. F. Ifugao economics. University of California Press (1922) 398 pp. Among many mountain people in the Philippines, the sweet potato is now the most important food.

for stupifying the shrimp living in the small streams and creeks can be made from the leaves of the sweet potato! A large number of leaves are pounded, placed in a small basket, and the basket agitated in the water to distribute the poison. I know of no other Philippine people utilizing the leaves of the introduced *Ipomœa batatas* in this manner.[29]

The sweet potato is wholly secular in use and meaning to the Pinatubo Negrito. Offerings which are made to the spirits following the rice and corn harvests are not performed for the sweet potato. It is not even offered as a food for the spirits during important ceremonies.

Maih. Zea mays Linn.

Although the Negritos obtain only one crop of corn during the year, it is the primary staple during *buwán dal-áha* and *buwán kílay* (approximately June and July).[30] The Pinatubo pygmies distinguish at least six (6) varieties of corn principally by the size of the ears and the colors of the kernels: (1) *kátaban*, (2) *módos*—not to be confused with the American cassava, *Manihot utilissima* Pohl., which is also called *módos* by the pygmies—(3) *tiniplí'*, (4) *bukóy*, (5) *niyumbúng*—which is also the name of an arrow—and, (6) *maralíkit* (see Plate 4, fig. 3). Like the sweet potato, the corn is either boiled or roasted, and in addition, a "corn bread" called *binüngoy*—among the deeper Pinatubo Negrito, *Mangyangúl*— is made by baking the pounded kernels in a green bamboo tube.

Corn also has a number of other uses. The tassels of the ear, the latter with the kernels removed, is made into a doll for children, the *anák-anák* (from *anák*, "child"). The tassels are also soaked in water, and the decoction ingested when it

[29] With regards to the continual controversy concerning the origin of the sweet potato, Merrill states: "I have found no references that lead me to believe that the sweet potato reached any part of Papuasia, Malaysia or tropical Asia before the arrival of the Europeans." Merrill, E. D. Further notes on tobacco in New Guinea. American Anthropologist 48 (1946) 22–30.

[30] The Pinatubo Negrito employ a 13 month (*buwán*) lunar calendar. This calendar was undoubtedly of Sambal origin, but has survived among the isolated pygmies whereas the Christian Sambal now use the Gregorian calendar and Spanish names for the months. Beginning roughly with the period which we call January, the months are: (1) *panüngoy*, (2) *yági*, (3) *pangítang* or *lanítak*, (4) *nangá* or *palíkik*, (5) *bo:'*, (6) *tulóng*, (7) *daláha*, (8) *kílay*, (9) *kalúwan*, (10) *láwa-láwa*, (11) *báih*, (12) *mánok*, and (13) *kulíkit*.

is difficult to urinate. The dried, red kernels are strung to form a necklace, and worn as a cure and protection against *gulútung*, "chickenpox" or "smallpox."

The Pinatubo pygmies believe that the various species of the small, burrowing blind snakes bite and that they are poisonous. Loveridge points out that this is a common and erroneous belief among the people in the Pacific World probably due to the prick which can be obtained from the spine-like, short tail of these snakes.[31] Nevertheless, one dark species called *tataním-lúpa'* is believed to be very dangerous, and the Negritos state that if a person is bitten, various parts of the body become black. The roots of corn are chewed, and the masticate is rubbed on the darkened areas of the body believed to have been caused by the "bite" of this snake.

A number of beliefs are encountered concerning planting and harvesting corn, as well as rice. An offering, *pátay*, is made to the spirits when the first corn is harvested, and before any is eaten by the pygmies. They cut off a small tree on the edge of the clearing, and on top of the stump place a roasted ear and some tobacco. Then a Negrito shouts: "All of you (that is, the spirits) come and share our harvest." If this is not done, they believe that the spirits will in anger destroy the next crop.[32] To prevent the crop from being stolen, the woman first plants some seeds in the corner of the field with closed eyes believing that a thief will not be able to see the mature ears.

The corn is planted one pace apart, that is, *miháy kúrang*, and either two or three seeds are placed in each hole. The planting seeds are kept in bamboo tubes with stoppers, *hüng-hüng*, made out of tobacco leaves in order to keep out the borers.

Módos. Manihot utilissima Pohl.

The two varieties of cassava which the Negritos recognize are planted from March through September, and the edibile root is available in small quantities throughout the year. The cultivated cassava is not poisonous unless, according to the pyg-

[31] Loveridge, A. Reptiles of the Pacific world. Infantry Journal (1945) 105.

[32] Crop offerings, *pátay*, are much more common among the lowland Sambal and among the Ilokano in Zambales, and are built around the rice harvest. It is apparent that this custom among the Negrito has been recently borrowed, and transferred to this exotic crop.

mies, left in the ground for a very long period of time. The Negritos also recognize one variety of spontaneous cassava which they call *kamótin-káyu,* the "potato tree." They state that this escape variety is very poisonous, and even if washed as they treat the wild, poisonous tuber *kalót, Dioscorea hispida* Dennst., cannot be eaten. The coastal Sambal call the cassava *kamótin-móros,* and both groups believe that the plant was introduced into Zambales by the Moro fishermen and traders; hence, the local name.

If a Negrito has been accidentally poisoned by eating the spontaneous variety, or by a cultivated variety which has been left in the ground too long, the leaf of the latter is plastered against the forehead to effect a cure.

Tabáko. Nicotiana tabacum Linn.

The more settled groups of the Pinatubo Negrito grow considerable quantities of tobacco, and all of the pygmies are heavy smokers. It is commonplace to see even six-year-old boys and girls smoking large, green-leafed cigars.[33] Prior to the past war, the Negrito sold and traded their tobacco into the lowlands for cloth, salt, metal, and other merchandise. Tobacco was one of their principal sources of income.

The tobacco is planted during *buwán láwa-láwa* in small clearings around the bases of trees, principally, the banana. After about one month, when the plants are at least 10 cm high, they are transplanted to medium sized open clearings which have not been burned over. The small plants are protected with coverings made from the fresh bark of the banana stalk. This box-like, protective covering is called *guák.* After harvesting, the tobacco leaves are either dried in the sun—always, when the Negrito needs tobacco immediately—or preferably, when the leaves are to be traded into town, in a wall-less, shed-like structure called the *damáda* (*ramada* Sp.). The tobacco fields are sometimes smudged to make the leaves *mabayáni,* that is, "brave" (we would call it "strong"). The sliced tubers of the poisonous *kalót, Dioscorea hispida* Dennst., and the long green leaves of *panóypoy, Kolowratia elegans* Presl., are inserted into a cone-like torch made of dried strips

[33] The native cigar is usually called *opóh* by the Negrito, but the lowland Sambal terms *abánoh* and *lampóng*—the latter being a very large cigar—are also heard. Stubs of partly smoked cigars are called *pükík;* the *upós* in Tagalog.

of wood. After igniting the torch, the Negrito walks through the field smudging the plants.[34]

At least three medicinal uses are encountered for tobacco. The leaves are placed as a poultice on the enlarged stomachs of children when this condition is accompanied by a very bad smelling waste matter. This sickness is called *magtataká'* (from *taká'*, "waste matter") by the Negrito, but *impátso* by the Sambal in Botolan. The green tobacco leaf is also used as a poultice for boils. In addition, irritations produced by the forest leeches, the *limátik*, are treated by rubbing a mash of the chewed leaves on the inflamed areas.

Tobacco as well as native wines [35] and red cloth—all recently obtained cultural items—are the commonest gifts to the spirits. A rolled tobacco leaf tied with a strip of red cloth is placed with the wine and/or red cloth on a shelf in the corner of the dwelling, as a gift to the spirit(s).

Since the introduction into the Pinatubo area and its subsequent use by the pygmies, a number of native plants have become to be utilized as tobacco substitutes during times of extreme shortages, and one of these was only discovered during the past war. These tobacco substitutes are:

Álob-álob. Bridelia stipularis (Linn.) Blume

The dried leaves of this woody vine, according to informants, are commonly used as a tobacco substitute.

Lübnóy. Calamus sp.

When there is no tobacco available, the dried stem of this rattan is smoked.

Labtáng. Anamirta cocculus (Linn.) W. and A.

Informants also stated that the dried leaves of this vine make a good tobacco substitute.

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[34] With regards to the introduction of tobacco into the Philippines, Beyer states: "It is also believed that tobacco (introduced by the Portuguese into the Moluccas probably prior to 1520) reached Mindanao from Ternate before 1530, and was known in Luzon before 1550. It is also believed that it may have been planted in the Sarangani Islands by the Villalobos Expedition, during their 5 months stay there in 1543." Beyer, H. O. Outline review of Philippine Archaeology by islands and provinces. Philip. Jour. Sci. 77 (1947) 351.

[35] I have not seen intoxicants being made by the Pinatubo pygmies, although informants stated that it was made prior to the war by some of the Negrito groups from sugar cane. Moreover, I have not seen a single Negrito drink native wines except upon ceremonial occasions, or when lowlanders were present and had furnished the stimulant.

Lúbi-lúbi. Dioscorea cumingii Prain and Burkill

The dried leaves of this plant, which is also prized for its edible tuber, are sometimes used as a substitute for tobacco.

Taguktók. Spathoglottis plicata Blume

The dried leaves of this common terrestial orchid are smoked when no tobacco is available. My pygmy friends state that the use of this plant only began during the Japanese occupation from purposeful experimentation, for during this period it was almost impossible for the Negritos to either grow tobacco, or to obtain it in trade from the lowlanders.

Minor useful plants of American origin.—In addition to the four exotic plants described above, which are of great importance to the contemporary pygmies, at least forty-six other plants of American origin were found in the Pinatubo environment, and all but four of these latter are useful in one way or another.

The presence of a number of the New World plants in the Pinatubo area can be attributed directly to the recent activities of lowland teachers who have taught at the Settlement Farm School for the Negritos, for these plants are confined largely to the Villar area. During the Spanish occupation, recalcitrant coastal Sambal fled to the territory of the Negritos in order to escape punishment, and settled there.[36] This would also, in part, account for a sizable number of American plants which are widely distributed in the surrounding lowland areas, but which now have limited distribution in the Pinatubo area.

In general, the plants of New World origin, particularly weeds, are confined to the grass lands, and utilized principally by the Negritos on the lowest slopes of Mt. Pinatubo. This is to be expected, for as Merrill has pointed out,[37] the "kaingin"

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[36] Doble, Hospicio. Synopsis of Memorial Events, Botolan, Zambales. This poem, in the Sambal dialect of Botolan, was written by Mr. Doble in 1928, and contains a description of the significant events in the growth of the Municipality of Botolan for the past 150 years. The data was obtained from the municipal records which have since been destroyed by termites. The poem tells how the Sambal killed a priest, before 1803, and fearing retaliation fled to the mountains, and formed a village called Alhambra in the very heart of the Negritos' territory. Typewritten copies of the original, sixteen pages, can be found in the files of the National Museum.

[37] Merrill, E. D. Notes on the flora of Manila with special reference to the introduced elements. Philip. Jour. Sci. § C 7 (1912) 208.

practice prepared the new environment for the invasion of exotic flora.

Abokádo. Persea americana Mill.

In addition to eating the fruit of the alligator pear, the Negritos boil the leaves and ingest the decoction for abdominal pains and dysentery. This small tree is found principally in the vicinity of Villar where it has been planted by teachers. Today, all of the pygmies are familiar with the avocado and have even initiated the planting of a few near Ugík (see Map).

Akwíti. Bixa orellana Linn.

The seeds of this small tree are squeezed into water and the water is then poured over meat giving it an orange color, and according to the pygmies, a more delicious taste. This practice, which is common among other Philippine people, is confined almost entirely to the more acculturated Negritos. The local name is related to the names for this plant in other Philippine dialects, for example, *atsuwéte* (Tag.), and according to Zingg, all were originally derived from the Mexican term, *achiote*.[38]

Anták. Phaseolus lunatus Linn.

The lima bean is commonly cultivated for its food value by many of the more developed Negrito groups in the Pinatubo area. The *iílo'* is a poisonous, escape variety of *Phaseolus lunatus*, and is very common throughout the entire region. The active principle is hydrocyanic acid. In the latter part of 1944, and early 1945, hundreds of Japanese soldiers fled to the slopes of Mt. Pinatubo to hide. After consuming the cultivated plants found in the clearings of the Negritos, they turned to wild and semicultivated foods. Subsequently, according to the Negritos, many of them died from eating the escape variety of the lima bean. However, the beans are edible, if properly prepared, as done by the pygmies. The beans are shelled, or the pods chopped up, and then placed in a basket in running water for at least one whole night. In addition, the water in which the beans are cooked is changed two or three times.

The leaf of the *iílo'* is pounded to obtain a mash which is rubbed, beginning at the feet, over the whole body of a person

[38] Zingg, R. American plants in Philippine ethnobotany. Philip. Jour. Sci. 54 (1934) 266.

who has been attacked by thunder. The nature and cause of this sickness is described below under Medicinal plants and practices in the section entitled *timbí'*. The plant names *anták* and *iílo'* are also used by the lowland Sambal living in the Municipality of Botolan, and according to Merrill, *Phaseolus lunatus* is called *hamtak* in Bikol, and *anta* in Ibanag. The plant name *iílo'* is unquestionably autochthonous, derived from the fact that this plant is poisonous, and when eaten produces dizziness, for *ílo'* means "dizzy" in Sambal.

Akása. Samanea saman (Jacq.) Merr.

Small sections of the bark of this large tree are boiled in water, and the brew ingested for stomach-aches. The "rain tree" is confined largely to the Villar area where it was planted around the school site as a shade tree, but in other areas it is apparently spontaneous. Merrill notes that this tree was introduced into the Philippines about 1860.

Ayá'-kabáyo. Amaranthus viridis Linn.
Ayá'-mantűg. Amaranthus spinosus Linn.

The tender tops of the leaves and stems of these two spontaneous plants make an excellent vegetable. The thorns are merely removed from the *ayá'-mantűg* which, according to the Negritos, is the "true" form. The other plant is the "horse's *ayá'*." Cognates for these plant names, according to Professor R. Galang of the National Museum, are found in Kapamgpangan; *A. spinosus is áyang-laláki,* and *A. viridis* is *áyang-babái.* The Pinatubo Negritos and the Sambal also call *A. spinosus, tilíti,* and this latter plant name appears in Bisaya as *tilítis,* and in Tagalog and Bikol as *kilítis* or *kulítis.* Merrill notes that these plants are certainly introduced, and Brown states that they may be of American origin, and that the local names are related to an Aztecan plant name.[39]

Balingbíng. Averrhoa carambola Linn.

The somewhat sour fruit of this tree is eaten. The tree is confined almost wholly to the Villar area. The plant name, *balingbíng,* also appears in Sambal, Tagalog, Bikol, and in other dialects.

[39] Brown, W. H. Useful plants of the Philippines 1 (1943) 513.

Bayába. Psidium guajava Linn.

The roots of this very common small tree are chewed and the saliva swallowed when a Negrito has dysentery or is becoming too thin. In addition, the dry bark which is peeling from the bole of the tree is boiled in two bowls of water until there is a residue of one bowl left. This brew is ingested for stomach-aches. The young leaves are also useful. They are chewed, and the mash is spit onto wounds to stop bleeding. The ripe fruit is eaten, and the green fruit is made into necklaces and worn as protection against evil spirits. The guava is a common medicine for many ailments throughout the Philippines.

The pygmies do not cultivate this American tree, but it is spontaneous throughout the entire Pinatubo area at low and medium altitudes. *Psidium guajava* is called *bayábas* in Tagalog, Ilóko, Cebu-Bisaya, and *bagábas* by the Igorot.

Búka-búka or kapistulá. Cassia alata Linn.

The leaves of this shrub are pounded to obtain a juice which is vigorously rubbed on areas of the body afflicted with a skin disease. This plant is spontaneous, and the plant names used by the Negritos are the same among the lowland Sambal. *Cassia alata* is widely used in the Philippines as an antiherpetic.

Bukó-bukó. Blechnum pyramidatum (Lam.) Urb.

This naturalized hairy herb is used for pig food by the more acculturated Negritos who raise domesticated pigs, and by the deeper groups when they have captured young wild pigs.[40] A native herb, *Ruellia repens* Linn., has the same use, and is also called *bukó-bukó*. These two herbs look somewhat alike, and belong to the same family *Acanthaceæ*. Due to the similarities of these two plants, the local name for the indigenous species

[40] Young wild pigs are a favorite and pampered pet among the Negritos in the Zambales Range, and sometimes the women suckle them. Furthermore, if the small wild pigs can be kept alive, the family will enjoy a feast. The Pinatubo Negritos employ a sizable number of specific terms to describe the pigs, their habits, calls, etc. In general, the wild pig is called *báboy-dikót*, the "grass pig"; suckling pigs, *büyúk;* an old female with large teats, *tuáh* or *piïndúan;* an old male with large tusks, *maúwa;* and a very old male or female, *pída* (*píra*, Bot.-Sbl.). The sound of the pig is called *timúyug* or *wak* (in Botolan, *uwík*); their tracks, *húyut;* and their trails, *húbang*.

was undoubtedly transferred to the New World plant, when it had invaded the grasslands and had become established. No cognates were found for this plant name.

Kakamóti. Ipomoea triloba Linn.

The small specialized underground part of this spontaneous vine may be eaten raw. It is interesting to note that the local name for this plant suggests floristic relationships with the sweet potato, the *kamóti.* In fact, there is, for the two plants belong to the same genus, *Ipomoea.* One Ilokano group has also recognized the fundamental similarities of these two plants, for they call *Ipomoea triloba, kamkamóte,* and the Polillo Dumagat and Tagalog call *Ipomoea gracilis* R. Br., *kamó-kamotían.* Other ethnic groups (see the local names below) employ distinct word bases, and apparently do not conceptually relate these species of *Ipomœa.*

We shall see over and over again, as in the case of these two ground vines, that the Pinatubo Negritos, through very sharp observation, and by employing a crude classification of plants, do incidentally in many instances show true floristic relationships with their plant names.

Local names: *bangbangau* (Ilk.); *halobagbug* (Tag.); *halobagting* (Tag.); *sagikat* (Bag.); *muti-muti* (C.-Bis.).

Kadáyum-dagí. Cosmos caudatus HBK.

This is a common weed at low and medium altitudes in the Pinatubo area, but the plant has no use. The name means the "rats' needle."

Kaláotútan. Ageratum conyzoides Linn.

The leaves of this naturalized, hairy herb are rubbed on the waist and belly area, when the Negritos have gas pains. The leaves are also squeezed to obtain a juice which is placed on cuts. The juice may or may not be heated before application. This New World plant is considered a very important medicine by the Pinatubo pygmies, and is also widely used for medicinal purposes by other Philippine people. The plant name is a local, descriptive term derived from its use to relieve gas pains, for *otút means* "break wind."

Kamastíli. Pithecolobium dulce (Roxb.) Benth.

The powdered bark of this introduced tree is used as a fish poison. The shrimps are not affected by this poison, but accord-

ing to the Negritos, it will kill the smaller fish and stun the larger. The fruit of this tree is also eaten by the pygmies. This tree is thoroughly naturalized in the Pinatubo area. As Zingg notes, the local names in the Philippines for this plant have been derived from the Mexican terms, *huamuchil, guamachil,* and/or *quamuchitl.*[41]

Quisumbing notes that *Pithecolobium ellipticum* (Blm.) Hassk., an indigenous species, is used as a fish poison in Mindanao,[42] but the same use for the introduced *Pithecolobium dulce,* insofar as I can determine, has not been previously reported from the Philippines. Experimentation by the Pinatubo Negritos, as well as by the Sambal who also use this plant as a fish poison, is certainly suggested.

Kalahkáh. Elephantopus scaber Linn.

The leaves of this naturalized herb are heated, and then rubbed on the neck and throat for a bad cough. No cognates were found for this plant name. This plant is called *tanIgtíg* in Botolan-Sambal.

Kalubáha. Cucurbita maxima Duch.

This common American squash is cultivated by most of the Pinatubo Negrito groups, and forms a minor garden crop. The young leaves are also a common green. In addition, the leaves of this squash are used as a medicine. The leaves are rubbed with salt, and are then plastered on the back for chills and fevers.

Local names: *kalabasa* (Tag.); *kulubasa* (Pamp.); *kumbasa* (Bon.); *kalabasi* (Sul.).

Kalumpáy. Paspalum conjugatum Berg.

This naturalized plant is used as an animal food by the more acculturated Negritos. According to Merrill, this plant is called *kulapí* in Tagalog.

Kamáh-bálang. Pachyrrhizus erosus (Linn.) Urb.

The yam bean, a native of tropical America, is widely naturalized in the Pinatubo area, particularly, along the banks of streams. The fleshy, turnip-shaped roots, after being peeled,

[41] Zingg, R. American plants in Philippine ethnobotany. Philip. Jour. Sci. 54 (1934) 251.

[42] Quisumbing, E. Philippine plants used for arrow and fish poisons. Philip. Jour. Sci. 77 (1947) 152.

are roasted or boiled. The plant is also cultivated by some of the pygmy groups, and is called merely *kamáh*. As we have noted, *bálang* means "no permanent place," and denotes the escape variety.

Local names: *sínkamas* (Tag. and Bot.-Sbl.); *kamas* (Ilk.); *sikamas* (Pamp.).

Kamátih. *Lycopersicum esculentum* Mill.

Among some of the Negrito groups in the Pinatubo area, the tomato is semicultivated. More common, however, are the wild forms which have very small fruit, and which are called the *kamátin-bálang*. This plant is called *kamátis* in Botolan-Sambal, Tagalog, Bikol, Iloko, and in other dialects.

Kasóy or *malúko*. *Anacardium occidentale* Linn.

The cashew is cultivated by some groups of pygmies on the lowest slopes of Mt. Pinatubo and is apparently naturalized in other areas. In addition to eating the flesh torus of the fruit, and roasting the seeds for food, the pygmies use the skin of the seeds as a medicine. The skin is plastered on the head in three places, both temples and the forehead, and is believed to be an effective cure for headaches. The plant name *kasóy* is widespread in the Philippines, and Zingg believes that it is ". . . derived from an unknown American word."[43] No cognates were found for the plant name, *malúko*, which is heard among the deeper Negritos.

Kíniw-állo. *Desmodium scorpiurus* (Sw.) Desv.

Translated into English, this autochtonous plant name means the "sun vine." The pygmies could give no explanation for this descriptive name, and the plant has no use.

Kolót-mantŭg. *Triumfetta bartramia* Linn.

The bast of this widely distributed, hairy annual is used for cordage. In addition, the stem is tied around both big toes and thumbs when a Negrito has a stomach-ache. *Mantŭg* means "true," and in the plant classification system of the Pinatubo Negritos, this plant is the "true *kolót*." They believe that it is related to *kolót-damuwág*, *Urena lobata* Linn., the "carabao's *kolót*," which is a pantropic plant that looks somewhat like

[43] Zingg, *Op. cit.*, p. 267.

Triumfetta bartramia, and which has the same use. Among some other ethnic groups in the Philippines, the same relationship is established, as can be seen by examining the local names:

Kolót-mantüg *Triumfetta bartramia* Linn.	*Kolót-damuwág* *Urena lobata* Linn.
Local names: *kolótang-bilóg* (Tag.); *kollokolot* (Ilk.); *kulukulutan* (Pang.)	Local names: *kulotan* (Tag., Bis.); *kollokolot* (Ilk.); *kulit* (Pang.)

With the exception of the Tagalog names, the other ethnic groups have not attempted to distinguish these two plants by the use of descriptive terms (e. g., *mantüg,* "true *damuwág,* "water buffalo") which gives almost a binomial appearance to many plant names of the Pinatubo Negritos. In this particular instance the plants belong to two different families, one plant native and the other recently introduced, and the Negritos's classification does not conform to the Linnaean system. However, in many instances it does, and it is significant to note again the Negrito's systematic use of a classificatory system.

Düdüngóy. Mimosa pudica Linn.

The leaves of this sensitive, half-woody herb are pounded, and then are rubbed on the enlarged abdomens of children. This plant name is derived from the word "shame," *düngóy* (*rüngóy,* Bot.-Sbl.), and denotes the sensitive nature of the leaves. In other Philippine dialects the local names for this sensitive plant are derived in the same manner (e.g., in Tag., *makahiyá,* from *hiyá,* "shame").

Dikót-ni-Talí. Parosela glandulosa (Blco.) Merr.

The whole plant is rubbed on the small of the back to remove the aching accompanying malaria. According to the Negrito, *Talí* is the nickname for *Katalína* (sp.); hence, the name of the plant means, the "grass of *Talí.*"

Díla'-díla'-báka. Elephantopus sp.

The leaves of this naturalized herb are pounded and then applied as a poultice to wounds. The pounded leaves of this plant are also used when a Negrito has been attacked by thunder. Beginning at the feet, the leaves are rubbed over the entire body of the person. The local name means "cow's tongue," and describes rather accurately the shape of the leaf. *Elephantopus* species are also called *dila-dila* in Tagalog.

Gudulyó'. Chenopodium ambrosioides Linn.

This herb is semicultivated, and commonly found around the dwellings of the more acculturated Negrito. It is prized as a malaria medicine. The leaves are merely crushed, and then rubbed on the small of the back. No cognates found.

Local names: *adlabón* (Ig.); *libug* (If.); *aposotis, alpasote, alpasotis, pasotis* in Tag., Bis., and Ilk., and according to Merrill, ". . . all corruptions of the Mexican *apazotl*."

Hógat. Elephantopus spicatus Aubl.

This naturalized herb has the same use as *díla'-díla'-báka, Elephantopus* sp., which is described above. No cognates found.

Labanús. Anona muricata Linn.

The sour sop is cultivated by the Negritos living on the lowest slopes of Mt. Pinatubo, and who live a more sedentary life. The mature fruit is eaten raw, and the green fruit is cooked as a vegetable. Two medicinal uses were also encountered for this plant. The leaves are boiled in water, and the brew is used to wash ulcers and wounds. The green bark from the trunk is rubbed and pasted on wounds to stop bleeding.

Local names: *labanus* (Sul.); *llabanos* (Bis.); In Central Luzon, corruptions of the Spanish name *guanábanos* are most commonly encountered.

Láda-bálang or *tángal. Capsicum frutescens* Linn.

The small chili pepper is thoroughly naturalized in the pygmies' territory as is indicated by the Negrito term *bálang*, meaning in this case, "no permanent place." The fruit is sometimes employed as a condiment, *pangapák*. However, the pygmies do not favor hot food, and the most frequent use of the plant is as a medicant. The leaf is pounded, mixed with lime, and applied to swollen parts of the body. The local name, *tángal*, is descriptive denoting the erect position of the fruit, and this name also appears in Botolan-Sambal. The plant names *lára* and *láda* are commonly encountered in the Philippines for this plant, or *C. annuum*.

Láda-balí. Capsicum annuum Linn.

The bell pepper is commonly cultivated for its food value by the pygmies in the Villar area, particularly, to be cooked with fish dishes. The local name indicates that *C. annuum* is cul-

tivated by the use of the term *balí,* "house," and distinguishes it from *C. frutescens* which is *bálang,* or as we would say, "wild."

Lasóna-sóngsong. Eleutherine palmifolia (Linn.) Merr.

The specialized underground part of this plant is roasted, pounded to obtain a powder, and the powder then rubbed on the belly area for abdominal pains. The Negritos state that this is a specific plant name, and has no meaning; however, the plant name is obviously borrowed as can be seen by examining surrounding dialects, and their uses of the term *songsong.* For example, in Tagalog a garlic is called *báwang-songsóng,* and two types of citrus, *súhang-songsóng* and *daranghítang-songsóng.* In each instance, the Tagalog means that this is the Chinese variety, and in the same manner, the Negrito term, *lasóna-songsóng,* would mean "Chinese onion." Manuel [44] has pointed out that *sungsóng* is derived from the Chinese words: "*sun* (favorable) *-hong* (wind), favorable wind to sail or navigate.

Líha. Centrosema plumieri (Turp.) Benth.

This naturalized plant of American origin has a specific name, but no use. The plant is probably applied also to an indigenous plant which was not collected. No cognates were found for this plant name.

Mádri-kakáw. Gliricidia sepium (Jacq.) Steud.

The leaf of this tree is merely rubbed on the body, or is burned, and the smoke is inhaled by a Negrito who believes that he has been attacked by evil spirits. The same method of use is followed when a pygmy is suffering from a thunder attack. The local name is Spanish-Mexican in origin.

Magugudulyó'. Scoparia dulcis Linn.

The leaves of this ubiquitous weed are pounded, and then held against the stomach with a cloth binding for a stomachache. The construction of the local name, as well as the statements of informants, denote that the Negritos believe that this plant is similar to *gudulyó', Chenopodium ambrosioides* Linn., which also came from the New World.

[44] Manuel, E. A. Chinese elements in the Tagalog language. Filipiniana Publications. Manila, Filipiniana (Research Society) (1948) 87.

Ólmut-ólmut or *balbalkót. Passiflora fœtida* Linn.

The fruit of this naturalized ground vine is sweet and edible. No cognates were found for this plant name, and it is obviously derived locally from the hairy appearance of the filaments of of flowers, for *ólmut* means "public hair" in Sambal. No derivation was found for the plant name *balbalkót.*

Pánti-pánti. Hyptis capitata Jacq.
Hyptis brevipes Poir.

The aromatic leaves of either of these two naturalized plants are inserted in the nostrils when the Negrito has a headache or is dizzy. The leaves may also be plastered against the forehead for headaches. The name for species of these same plants in Tagalog and Bikol is *pansi-pansi.*

Ngúho'-dagí. Synedrella nodiflora (Linn.) Gaertn.

This naturalized herb of American origin has no use, and the local plant name means the "rat's snout." A small, native, rather hardwood tree, *Ligustrum pubinerve* Blm., has the same name.

Papáya'. Carica papaya Linn.

In the Pinatubo area, the papaw is both cultivated and spontaneous. The latter have smaller, less desirable fruit. The green fruit is a common cooked vegetable, and the ripe fruit is eaten raw. The cooked, green fruit is also widely used as food for domesticated pigs. The leaves are applied as a poultice to the sides of the body when a Negrito is *dinánanángin;* a "sickness of the wind." This illness is described in the section dealing with Medicinal plants and practices.

Pías. Averrhoa bilimbi Linn.

The fruit of this semicultivated tree is considered a delicacy by the Pinatubo pygmies. The tree is confined largely to the Villar area. In addition, the leaves are boiled in water, and the brew used to bathe a baby that has chills or fever.

Local names: *pias* (Bot.-Sbl.); *kamías* (Tag.)

Pínya'. Ananas comosus (Linn.) Merr.

Both cultivated and escape varieties of the pineapple, the latter in very large numbers, are found in the Pinatubo area. During *buwán láwa-láwa* and *buwán báih,* the pygmies harvest great quantities of the fruit for local consumption from the

naturalized plants. Besides utilizing the fruit as a food, the Negrito believes that it is an effective vermifuge.

Among the lowland Sambal in the Botolan area, the leaf of the *pínya'* is considered an important aid for a difficult childbirth. The leaves are soaked in water until the water becomes yellowish, and the brew is then ingested by the woman. In addition, the mashed leaves are mixed with salt, and plastered on the woman's belly.

Sagó. Maranta arundinacea Linn.

The arrowroot is cultivated in small quantities by a number of the Pinatubo Negrito groups for its edible starchy rhizome. The local name for this plant, which is also found in Bikol and Iloko as *sagú,* has undoubtedly been derived from the use of the rhizomes as a starchy food. *Metroxylon sagu* Rottb., the "sago palm," has a starchy pith which is prepared and eaten throughout Malaysia, and *Metroxylon rumphii* Mart., which has the same use, is called *ságo* in Tagalog.

Maranta arundinacea is called *aaradó* in Botolan-Sambal, and *ararú* in Tagalog, and both terms appear to have been derived from the English word, "arrowroot."

Sampága. Quamoclit pennata (Desr.) Bojer

The fine, feathery-like leaves of this spontaneous vine can be cooked as a vegetable. In addition, the red, star-shaped flowers are sometimes worn by the Negrito women in holes in their ear-lobes. *Jasminum sambac* (Linn.) Ait., is called *sampága* in Tagalog, or more commonly *sampagíta* (*sampaguita*). As pointed out by Zaide (though crudely, for he persists in using Spanish orthography),[45] it is possible that this plant name was derived from the terms *sumpá' kitá,* "you and I pledge," said as Filipino lovers exchanged necklaces made from the flowers of *Jasminum sambac.*

Tümtűm. Hyptis suaveolens Poir.

Although this plant is of American origin, it is one of the most important medicines of the Pinatubo Negrito, and has many uses. The roots are boiled in water, and the decoction ingested for a stomach-ache. This brew may also be ingested for dysentery, or the roots merely chewed, and the saliva

[45] Zaide. "Sampaguita, Philippine national flower and narra, Philippine national tree." Philippine history and civilization. Philippine Associated Publishers (1939) 11–14.

swallowed for dysentery. The Negritos further state that the leaves of this plant are used for toilet paper when a pygmy has loose bowels. An infant's disease called *taón*—this disease is described below in the section dealing with Medicinal plants and practices—is treated with this plant. The leaves are squeezed to get the juice which is mixed with mother's milk, and then fed to the child. No cognates were found.

Takumbáw. Jatropha curcas Linn.

The physic nut is extensively naturalized in the Pinatubo area at low and medium altitudes. Although this plant is of relatively recent introduction, it is used in many ways. Among the sedentary Negritos, and in the Zambales lowlands, it is planted for hedges.[46] The Negritos roast, and eat the seeds for a laxative. The juice from the leaf is placed on a piece of black cloth, and touched to a baby's tongue for *agíhap,* that is, an inflamed tongue accompanying breast feeding. In addition, the peeled seeds are placed in a small bamboo tube, and when the tube is ignited, the oil contained in the seeds makes an effective lamp.

Local names: *takumbáw* (Bot.-Sbl.); *tagumbau* (Ilk.) It is possible that this plant name is locally derived from the Sambal word for "twin," *lumbáw,* for the fruits are commonly born in pairs.

Číko. Achiras sapota Linn.

A few cultivated sapodilla are found in the Villar area, and in the villages of other sedentary Negrito groups. As elsewhere in the Philippines, the fruit is highly prized. The local name is derived from the Mexican word, *chico.*

Utóng or *káling. Phaseolus vulgaris* Linn.

The kidney bean is cultivated extensively by the more settled Negritos and escape varieties are common. The latter, according to the Negritos, are poisonous, and are called *tagubáy.*

Local names: *otong* (Ilk.); *kikilang* (Bon.) for *P. lunatus* Linn.

COMPARATIVE USES, AND THE ETYMOLOGY OF NAMES, FOR PLANTS OF AMERICAN ORIGIN

It is interesting to note that some of the uses of the American plants by the Pinatubo Negritos—that is, uses other than for

[46] The Tagalog also plant *Jatropha curcas* for hedges, and include this function in the vernacular name, *túbang-bákod,* meaning "poison fence."

food—correspond exactly with usages found among the Mexicans and American Indians. Zingg notes that a decoction of the bark of *Psidium guajava* is taken internally by the Mexicans for stomach-ache.[47] An identical usage is encountered among the Pinatubo pygmies. *Jatropha curcas,* the physic nut, is used in Mexico as a laxative, and for hedges. These uses are also found among the Pinatubo Negritos, the Sambal, and among many other Philippine ethnic groups. It would be valuable and interesting, as a future study, to systematically compare the uses of New World plants by the Pinatubo Negritos (which have been set forth herein) with the ethnobotany of Mexican and Indian groups. A comparative study might clarify whether some plants, having only minor uses, were purposely or accidentally introduced into the Philippines, particularly, if uses were found which were commonly known in the New World, but unknown for other native Philippine flora.

In most instances uses for native plants, which had already been established or previously borrowed by the Negritos, were transferred to the plants from the New World. *Ílo'*, the escape variety of *Phaseolus lunatus* is only one of many plants, the others being indigenous, which is used as a medicine for thunder attacks. The skin of the *kasóy* seed (*Anacardium occidentale*), the leaves of the *papáya* (*Carica papaya*), *láda-bálang* (*Capsicum frutescens*), and of the common squash (*Cucurbita maxima*), are all used as a poultice on the forehead and/or temples for a headache. This latter medicinal practice is extremely widespread in the Philippines, and was long in vogue before New World contacts existed.

The plant names used by the Pinatubo pygmies for the flora of American origin have been derived in a number of ways: (1) local, descriptive plant names coined by the Pinatubo Negrito, for example, *kíniw-alló, Desmodium scorpiurus* (Sw.) Desv., the "sun vine"; (2) plant names of Mexican or Indian origin which accompanied the exotic plants, for example, the *kamóti, Ipomoea batatas* (Linn.) Poir.; and (3) names of native plants which have been transferred to the recently introduced American plants, when there were some floristic similarities between the plants, for example, the *kolót.* In this connection, Professor Beyer has pointed out in conversations how the sweet potato frequently does not carry the American

[47] Zingg, R. American plants in Philippine ethnobotany. Philip. Jour. Sci. 54 (1934) 245.

Indian name in marginal areas, the name having been lost in the process of diffusion, but takes the name of native or prehistorically introduced yams; for example, *Ipomoea batatas* is called *lapni* by the Ifugao, and *tugi* by the Bontok. These latter plant names appear in these dialects and in other Philippine dialects for species of wild yams.

In a few instances, specific plant names were found for the American flora, that is, plant names having no descriptive derivation, but defining only a particular plant; for example, *bukó-bukó* (*Blechnum brownei* Juss.), *kalahkáh* (*Elephantopus scaber* Linn.), *hógat* (*Elephantopus spicatus* Aubl.), *liha* [*Centrosema plumieri* (Turp.) Benth.], and *tümtüm* (*Hyptis suaveolens* Poir.). Moreover, cognates for these five specific names were not found in other Philippine dialects. I strongly suspect that these names for American plants are also applied to native species, but because the native plants were not also collected, the relationship was not established. These are either local descriptive names which have lost their original meaning, or borrowed terms which have been thoroughly disguised through linguistic mutation.

The rapidity with which the American plants have invaded and have been adapted to Philippine cultures, as in the case of the Pinatubo pygmies, is truly amazing. A plant such as *tümtüm, Hyptis suaveolens*—which we have already seen as one of the most important Negrito medicines—was accidentally (?) introduced from the New World by man, spread through natural agencies (again probably with the help of man) from the point or points of introduction, found a suitable habitat (which had been prepared by man), and became established to the extent that the plant is now characteristic of the Pinatubo flora at low and medium altitudes. Finally, this naturalized plant was utilized by the Negrito, received a specific name, and has become apart of their traditional behavior.

The speed with which the exotic flora is utilized, such as *tümtüm*, is undoubtedly influenced by the presence or absence of physical characteristics of the plants which do, or do not, meet established local prerequisites determining uses. For example, plants having bitter leaves or stems are commonly used in the Philippines for stomach disorders. If an introduced plant is found to have this characteristic, it will be quickly utilized. The fact that many Philippine groups, such as the Pinatubo Negritos, constantly experiment with plants

hastens the process of the recognition of the potential usefulness, as defined by the culture, of the introduced flora.

PLANTS OF PURPOSEFUL HISTORICAL INTRODUCTION INTO THE PHILIPPINES (OTHER THAN FROM THE NEW WORLD)

In order to establish the identity of the native flora which provided the Pinatubo pygmies with the necessities and wants of life during the prehistoric times in the Philippines, it is now necessary to enumerate those plants which, though useful at present, are known to have been of purposeful historical introduction from other lands. Unlike the plants of American origin, the plants of recent historical introduction from other countries have had little influence upon Negrito life. With the exception of the New World plants, all important economic plants utilized by the Pinatubo Negritos and by the Filipinos in general, had been introduced prior to the first European contacts accompanying waves of prehistoric cultural intrusions. Of the cultivated and spontaneous plants, which according to Merrill, were certainly ". . . introduced by the Spaniards from Europe, or from various neighboring countries in the East,"[48] only four were found in my ethnobotanical collection from the Pinatubo area:

Kanila. Cinnamomum zeylanicum Blm.

The bark of this tree is scraped to obtain a powder which is mixed with saliva to form a paste. The paste is then applied to three points on the head; the glabella, and both front temporals. A strip of cloth may be wrapped around the forehead to hold the paste in place. According to Merrill, this tree was introduced from India or Ceylon, and the local name is Spanish in origin, *canéla.* It is significant to note that the two plants used in this manner, that is, as an application of paste to the forehead and temples, are both introduced. As noted, the other plant is the American *kasóy, Anacardium occidentale.* As no native plants were found which are used in this same fashion, it would indicate that this specific method of treating headaches was also recently introduced.

Dikót-ni-iná-Sánta-María. Artemisia vulgaris Linn.

This half-woody herb which was introduced into the Philippines from Europe is a common medicine among the Pinatubo

[48] Merrill, E. D. Notes on the flora of Manila with special reference to the introduced elements. Philip. Jour. Sci. §C 7 (1912) 194.

pygmies. The leaves are plastered against the forehead for headaches. The local plant name, partly of Spanish origin, means "mother Saint Mary's grass."

Gomamíla. Hibiscus rosasinensis Linn.

The flower bud of this widespread, cultivated, and ornamental bush (a native of the Old World) is pounded, and the mash is placed on boils. In Manila today, it is common to see the buds of this plant being gathered from hedges of *Hibiscus rosasinensis* Linn., along the streets. The buds are mashed with salt and sold in the various markets as a medicant for boils.

Local names: *gumaméla* (Tag., Bis., Pamp.)

Sampálok. Tamarindus indica Linn.

This tree has been cultivated by the Negrios in the immediate vicinity of Villar for its edible fruit, and in other areas, it is spontaneous. According to Merrill, the tree is very probably a native of tropical Africa.[49] A few of the Pinatubo Negrito groups also call this same tree *uwípit.*

Local names: *sampálok* (Tag., Pamp., C. Bis.)

USEFUL PLANTS ACCIDENTALLY DESSIMINATED BY MAN DURING THE HISTORIC AND/OR PREHISTORIC PERIOD

A sizable number of plants have been inadvertently introduced into the Philippines by man within the historic period, or possibly earlier. As Merrill has pointed out, these plants are certainly not a part of the native flora, as their distribution in the Philippines would indicate.[50] Furthermore, it is reasonable to assume that most of these have been introduced within the historic period because of the intensified cultural contacts. The following plants found in the Pinatubo environment, and used in one way or another by the pygmies fall into this category:

Ántak-áho. Tridax procumbens Linn.

The leaves of this plant are cooked as a vegetable. The plant is not included in Merrill's Enumeration of Philippine flora, and is apparently of very recent introduction. The Negrito name means the "dog's bean."

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[49] Merrill, E. D. An enumeration of Philippine flowering plants 2 (1925). 256.

[50] Merrill, *Op. cit.*, pp. 195–6.

Bádah. Andropogon aciculatus Retz.

This very common, small grass which has annoying spikelets that stick to clothing, has no use, but has a specific name. In the Sambal of the Municipality of Botolan, this grass is called *bárah*, and in the Sambal of Iba, *mananahí'*.

Bukó-bukón-lanîm. Eclipta alba (Linn.) Hassk.

The roots of this ubiquitous weed are pounded to obtain a juice for the prick of the severe stinging, scorpion fish, *napó'*, *Gymnapistes niger* Cuv. and Val. One informant called this plant *lamón-lanîm*, "water grass," and both names denote by the term *lanîm*, "water," the habitat of this weed. [51]

Kolót-dam"wág. Urena lobata Linn.

The bark of this erect shrub yields fibers which are rolled into cordage. In addition, the roots of this plant are boiled, and the brew ingested for stomach-aches, or the bark is merely worn as an arm band for the same sickness.

The Polillo Dumagat call this same plant *kulótan*, and the roots are boiled in water and the decoction ingested for malaria. Bal notes that *Urena lobata* is commonly used for cordage in the State of Orissa, India.[52]

Kopít-kopít. Desmodium pulchellum (Linn.) Benth.

This plant is commonly burned under or around the Negritos' dwellings to drive away the evil spirits, particularly, the *kólam* and *jabló*. This usage is discussed in detail below in the section dealing with Plants and the belief in spirits. *Kopít-kopít-lalî'*, *lalî'* means "forest," and differentiates the habitat of the one *Desmodium velutinum* (Willd.) DC., also accidentally introduced, has no use, but the local plant name shows again the incidental accuracy of the Negritos' botanical classification. The word *kopít-kopít* from the other. As Professor Sulit has pointed out in conversations, the protective bract covering the seed of *Desmodium pulchellum* gives a pinching-like appearance to the fruit, and this has probably stimulated the plant name for this species, as well as for other plants which have the same

[51] Among the lowland Sambal, "water" is pronounced *lanúm*. This pronunciation is also encountered among the Pinatubo Negritos, but *lanîm*, is more frequently heard.

[52] Bal, S. N. Useful plants of Mayurbhanj State in Orissa. Records of the Botanical Survey of India 6 (1942) 93.

characteristics. *Sípit, hípit, ípit* are common terms in Philippine dialects for "pinch."

Handúyong-a-lilinaw or *lilínaw-naudít. Emilia sonchifolia* (Linn.) DC.

The leaves of this pantropic weed are crushed, and the juice is used to wash sore eyes. Some of the Pinatubo Negrito groups merely use this eye-wash to make their eyes clear. The word base *línaw* means "clear" in Sambal and Tagalog (*líno* in Kapampangan), and I strongly suspect that this plant name has been derived from the use of the plant as an eyewash.[53] In addition, the reduplication of the first syllable of the word base, in this instance *li,* is commonly employed by the Pinatubo Negrito when coining plant names. However, the pygmies now consider this a specific plant name, and offer no explanation of its etymology. *Naudít* means "red," hence, this is the "red *lilínaw,*" being differentiated from the "white *lilínaw*" with the use of color terms. The latter plant was not collected.

Local names: *tagulénaw* (Pol.-Dum.); *tagulínaw* (Pol.-Tag.)

Hawáan. Euphorbia hirta Linn.

The roots of this pantropic plant are soaked in water and the brew ingested for headaches. The decoction is also drunk for sun or heat exhaustion, particularly, when accompanied by a violent headache. In addition, the roots are boiled in water, and the brew used as a mouthwash for toothaches. *Euphorbia hirta* is a common medicine in the Philippines, and the whole plant, according to Bal, is somewhat a stimulant and narcotic.[54]

Local names: *sisiohan* (Pamp.)

Hayápüh. Eleusine indica (Linn.) Gaertn.

The roots and leaves of this common "yard weed" are burned to smudge the body of a person who has suffered a relapse following any type of illness. The patient also inhales the fumes. No cognates were found.

Hikhík-luwaló. Desmodium triflorum (Linn.) DC.

The stem and leaves of a large number of these small herbs are pounded, and then squeezed to obtain a juice for wounds.

[53] As noted by Bal, in India the juice from the leaves of this plant is dropped into sore eyes. *Ibid.,* p. 39.

[54] Bal. *Ibid,* p. 41.

The local plant name has been derived from the small, round leaves of this plant which look like "scales," *hikhík.* In Tagalog, *Desmodium* spp., are called *kaliskís-dalág;* the "mud fish scales."

Lánah. Rottboellia exaltata Linn.

The leaves of this grass have two uses. They are merely rubbed on the back to remove the aching accompanying malaria, or are used in the same fashion when a person has been attacked by a malign spirit. No cognates were found.

Lihík-lihík. Crotalaria linifolia Linn.
Crotalaria acicularis Ham.
Crotalaria albida Heyne.
Phyllanthus simplex Petz.

Four different specimens of *lihík-lihík* were collected, and it is interesting to note that three belong to the same genus. All of these weeds, including *Phyllanthus simplex,* which though having the same local name belongs to a different plant family, have the same use. A large number of the leaves are pounded, then placed in a banana leaf, and the juice dripped into sore eyes. No cognates were found.

Lingí'. Sida acuta Burm. f.

The leaves of this pantropic weed, undoubtedly disseminated by man, are pounded, mixed with salt, and the mash placed on boils. In addition, the roots of this plant are boiled in water, and the decoction used as a mouthwash for toothaches. No cognates were found.

Lilínaw-láwak. Crotalaria ferruginea Grah.

The leaves of this plant are merely squeezed to obtain a juice used for washing sore eyes. *Láwak* means an "open, uncultivated, grass field," and this term is used to differentiate this plant from *lilínaw-naudít, Emilia sonchifolia* (Linn.) DC., the "red *lilínaw.*"

Malabawúgan-mayámo. Cissampelos pareira Linn.

The bitter roots of this climbing vine are chewed and then swallowed for abdominal pains and dysentery. The local name means "like the small *bawúgan* (*Dioscorea esculenta*)."

Two other plants are also called *malabawúgan;* the useful *malabawúgan-malháy, Pericampylus glaucus* (Lam.) Merr., the "large plant like the *bawúgan,*" and the non-useful *malabawúgan-*

nakumŭd, Stephana japonica (Thunb.) Miers, the "brittle plant like the *bawúgan.*"

Malakohyáwan. Cyathula prostata (Linn.) Blm.

The stem and leaves of this herb are rubbed on the waist and belly areas to remove "gas pains," the *butáng.* It is noteworthy that the only two plants used to treat permentation are exotic; *kaláotútuan, Ageratum conyzoides* Linn., an American plant, and the above plant which was accidentally introduced into the Philippines by man. Although this plant name is obviously descriptive, I did not obtain the meaning of *kohyáwan.*

Támbal-angán. Anisomeles indica (Linn.) O. Ktze.

The leaves of this spontaneous plant, which according to Merrill was accidentally introduced, are merely smelled by the pygmies when they have an unquenchable thirst; a condition called *angán.* Then, in the words of an informant: "The thirst will depart."

Tagatúhi'. Abelmoschus moschatus Medic.

The seeds obtained from the pods of this erect herb are strung to form a necklace and worn by the women and children to frighten away the malign spirits. No cognates were found.

Tulín-bakólaw. Centella asiatica (Linn.) Urban

The stem of this herb is worn as a necklace for colds and for coughing. The name of this plant would indicate that the Pinatubo pygmies borrowed the plant name from the lowland Sambal. In Botolan-Sambal, the plant name means "monkey's ear," and the pygmies recognize the derivation. However, the Pinatubo-Sambal term for "ear," is *tü:k* which in the lowlands means "deaf." In addition, *bakólaw,* a Sambal term for "monkey," is more commonly heard in the lowlands than in the mountains among the pygmies.

Untíh. Solanum nigrum Linn.

Depigmented areas of the body, called the *labáng,* are rubbed with the pounded leaves of this cosmopolitan weed. In addition, the leaves of this plant are pounded, and then rubbed over the entire body of a person who has been attacked by thunder.

CULTIVATED FOOD PLANTS OF PREHISTORIC INTRODUCTION

Professor H. Otley Beyer denotes six distinct cultural horizons as comprising the prehistoric period in the Philippines, as well as the major invasions into the archipelago, and establishes incidentally a chronology of the introduction of important cultivated food plants.[55] The first period which began at least 250,000 years ago, and which is represented by paleolithic archaeological material,[56] was apparently that of a food gathering and hunting folk who had immigrated by land.

The second period, about 15,000 to 20,000 years ago, marked the first invasions of the pygmy types which are still represented in the Philippine population by the scattered Negritos and the "Australoid-Sakai" groups. Beyer suggests that these pygmies ". . . practiced a crude kind of dry agriculture in forest clearings,"[57] and as we shall see later, there is some ethnobotanical evidence to support this view. Of course, the pygmy groups were primarily food gatherers, hunters, and fishermen, and, technologically speaking, their culture was very primitive.

The third period marked the first intrusion of seafaring people having an early Neolithic culture, and the first introduction of important cultivated foods, principally, according to Beyer, millet and yams.[58] The immigrants during the third period came from the north about 5,000 to 6,000 years ago.

The fourth period, beginning about 1500 B.C., and lasting until about 500 B.C., marked the first extensive introduction of important cultivated crops.

> They (the immigrants during the fourth period) practiced extensive dry agriculture, and introduced upland rice, taro (gabe), new varieties of cultivated yams and other valuable food crops.[59]

The people during the fourth period, which Beyer calls the "Indonesian B" or Late Neolithic people, came from Indo-China and the south China coast.

The fifth period, which Beyer treats as a continuation of the fourth, marked the introduction to the Philippines of irrigated rice culture and terracing.

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[55] Beyer, H. Otley and Jaime C. de Veyra. Philippine Saga: a Pictorial History of the Archipelago Since Time Began. Manila. (1947) 2.

[56] Beyer, H. Otley. Philippine and East Asian Archaeology, and its relation to the origin of the Pacific Islands population. National Research Council of the Philippines, Bull. No. 29 (1948) 6–12.

[57] *Op. Cit.*, p. 2.

[58] I did not encounter the Indian millet, *Setaria italica* (Linn.) Beauw., in Zambales, but it is widely cultivated in Mountain Province.

[59] Beyer, H. Otley and Jaime C. de Veyra. *Op. cit.*, p. 2.

Finally, during the sixth period (approximately 300 B.C. to 200 B.C.), the Iron Age groups of Malays coming from the south introduced the water buffalo, developed rice culture, ". . . cultivated or utilized many fruit trees and fiber plants, as well as ornamental plants, spices, medicinal plants and other agricultural products bespeaking of an advanced civilization.[60]

With reference to useful plants introduced into the Philippines, Merrill much earlier stated:

> Manifestly the aboriginal inhabitants of the Philippines must have reached the Archipelago from some other country, and it is certain that in the thousands of years that have elapsed since many first reached the Islands, very many plants have been introduced, some purposely, some inadvertently, by the early invaders and their later successors from Malaya. If we exclude the abaca plant (*Musa textilis* Née) and the various trees yielding timbers, gums, and resins, a few palms, some bamboos, the rattans, etc., it will be found that practically all the species now found in the Archipelago that are of the greatest importance in the economy of the native, whether for food, for condiments, for clothing, for dyes, for ornamental purposes, and very many for medicinal purposes, have originated outside of the Philippines, and have purposely been introduced at one time or another. Not a single important food plant or fruit tree has originated in the Archipelago, but all have been introduced.[61]

Thus, from the cultural intrusions into the Philippines during the prehistoric period, and with the addition of plants from the New World which were discussed above, the present character of Philippine economic and agricultural practices was formed. Of the important food plants which were introduced during the prehistoric period, the Pinatubo Negritos now utilize at least twelve, and of the fruit trees, at least nine. Some of these plants of prehistoric introduction (which are described in detail below), such as *táü, Colocasia esculenta* (Linn.) Schott., are well adjusted to the semi-sedentary life of the pygmies, and have undoubtedly been utilized by them for a long time. Other crops, such as upland rice, demanding constant care, are today grown only by the more acculturated Negritos, and are obviously of very recent introduction to the pygmies.

GARDEN AND KAIÑGIN CROPS OF PREHISTORIC INTRODUCTION

Anták. Vigna sinensis (Linn.) Savi

The cow pea is cultivated primarily by the Negritos living on the lowest slopes of Mt. Pinatubo and is not an important

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[60] Beyer, H. Otley and Jaime C. de Veyra. *Op. cit.*, p. 2.

[61] Merrill, E. D. Notes on the flora of Manila with special reference to the introduced elements. Philip. Jour. Sci. 7 (1912) 169.

food. The Pinatubo pygmies do not differentiate the various species of beans, but call all *antâk,* which in addition to their distribution, would indicate that the beans are of very recent introduction to the pygmies. *Vigna sinensis* is a native of tropical Asia. The Sambal living in the municipalities of Botolan and Iba also call this plant *antâk.*

Bangyâd. Andropogon citratus DC.

The lemon grass is encountered in the vicinity of Villar, and in other pygmy communities closest to the lowlands. Like elsewhere in the Philippines, the stem, rootstock, and young leaves are used for flavoring food. The plant is a native of tropical Asia, and its limited distribution in the Pinatubo area would suggest that it has been acquired only recently by the Negritos. *Andropogon citratus* is called *tanglâd* in Tagalog, Bikol, and some Bisayan dialects.

I did not encounter the "milo maize," *Andropogon sorghum* (Linn.) Brot., also a prehistorically introduced food plant, among the Pinatubo pygmies. Even *Andropogon aciculatus* Retz., which we have noted as having no use among the Negritos, is used as a famine food by the surrounding lowland groups. As Professor Sulit has pointed out in conversation, a blanket is dragged over the ground to collect the spikelets. These are then pounded, like rice, to obtain the "grains."

Baúgan or *bawúgan. Dioscorea esculenta* (Lour.) Burkill

The goa yam is widely cultivated by all of the Pinatubo pygmy groups and is one of the most important tuberous foods of prehistoric introduction throughout the Philippines. An escape variety, called *kopástak* by the Pinatubo Negritos, is also used for food. The tubers of the goa yam are mature beginning in *buwán mánok,* and are harvested through *buwán panüngoy.* The plant is hardy, requires little care, and is well adapted to the living habits of the Pinatubo pygmies.

In addition to its importance as a food, the goa yam is also used as a medicine for swollen fingers and toes. The raw tuber is scraped, and the shavings are applied to the swollen areas. This type of swelling is called *báhI'* by the Negritos, No cognates were found for this plant name.

Kabatúti'. Luffa cylindrica (Linn.) M. Roem.

This member of the squash family is cultivated rather extensively by the more settled Negritos, and an escape variety is also found. The edible fruit is prized by the pygmies.

Local names: *kabattti* (Bon., Ilk.)

Kondól. Benincasa hispida (Thunb.) Cogn.

The wax gourd, which was purposely introoduced into the Philippines from India during the prehistoric period, is also cultivated by the more sedentary Pinatubo pygmies. However, this gourd could not be considered even an important minor food, and is undoutedly of very recent introduction to the Negritos.

The juice from this gourd is also used as an eye wash for any type of eye inflamation.

Local names: *kondól* (Iv., Tag.)

Háa. Musa paradisiaca Linn.[62]

Musa sapientum Linn.

The Pinatubo Negritos cultivate and semicultivate at least seventeen varieties of bananas, and, in addition, utilize at least four wild varieties. The latter are discussed below in the section dealing with Wild food plants. According to Merrill, *Musa paradisiaca* was purposely introduced into the Archipelago during prehistoric times, but *Musa sapientum* is possibly indigenous. Nevertheless, the latter for functional reasons is discussed in this section.

The cultivated and semi-cultivated varieties of bananas are one of the Pinatubo Negrito's most important sources of food, and among a number of the pygmy groups, particularly those in the Baklây area, the banana and the sweet potato are the two primary staples. In general, the larger stands of bananas are found in the deeper, more marginal areas, a condition which is undoubtedly due to the fact that the habitat there is more suitable.

The following twelve varieties of bananas, *Musa sapientum* Linn., are either boiled or roasted before eating, and as a class are of inferior quality: (1) *balátay,* (2) *botnŭk,* (3) *bulúg,* (4) *kayáw,* (5) *kinhíl,* (6) *habá',* (7) *hillángan,* (8) *hokhók,* (9) *lalagúna,* (10) *obóg,* (11) *tábia'* or *matábia',* and (12) *túol.*[63] Five cultivated varieties of *Musa sapientum* Linn. are

[62] Banana suckers, and young plants to be transplanted, are called *sáa* in Bolinan-Sambal. I have noted many times that names for varieties and classes of a particular cultivated plant become the general name for the same plant in another dialect.

[63] Some of the names employed by the Negrito for the varieties of bananas also appear in Tagalog: *balátay, bulúg, lalaguna, matábiya,* and *sabá'. Cf.,* Webster, Food Plants of the Philippines (1924) 35–38; Teodoro, Philip. Jour. Sci. § C 10 (1915) 379–421; Quisumbing, Philip. Agric. Rev. 12 (1919) 1–90, for an extensive list of names for varieties of bananas.

of excellent eating quality, and are commonly carried into the lowlands to exchange for red and blue cloth, knives, and other store goods, or merely sold. These are (1) *bungúlan,* (2) *lakatán,* (3) *tampúing,* (4) *daráya',* and (5) *botólan-balí.* The names of these last five varieties are also encountered in surrounding dialects.

In addition to their value as food, the bananas (including the wild species (*Musa errans* and varieties) have countless other uses. The roots of the *lakátan, Musa sapientum* L. var. *lacatan* (Blanco) Teodoro are boiled in water, and the brew drunk by women to stimulate pregnancy. Neither the Negrito men nor the women will eat the double banana, for it is believed that this will cause the wife to have twins. There appears to be no traditional fear or objection among the Negritos against twin *per se* except that it is usually a difficult and dangerous childbirth for the woman. As even a cursory glance at the literature will show, this is a widespread belief among the Malayan people.[64]

The large leaves of the banana are used as rain covers, the *tulóng,* for the walling and roofing of the cruder types of dwellings, and are the most common eating plates. Drinking cups, *húkong,* for scooping water out of springs are made of the folded leaf. The sheath from the stalk is used for making thread, head straps for the women's pack baskets, for the walling and roofing of dwellings and, as we have seen, as covers for the tobacco seedlings. The flower buds, *púho',* provide an excellent cooked dish. Uses of bananas are innumerable.

In Botolan-Sambal, the generic term for banana is also *háa,* but in Iba-Sambal, only six kilometers to the north, *batág.* This latter term also appears in Bikol.

Páli. Oryza sativa Linn.

The Negritos recognize and have grown at least nineteen varieties of upland or dry rice: (1) *inabaká',* (2) *kinumpánya,* (3) *kalíbu,* (4) *dinumwág,* (5) *kinabíbi,* (6) *doláro,* (7) *kabalán* (all of these varieties, one to seven, have an odor due to the presence of essential oils), (8) *binitú'un,* (9) *salumánay,* (10) *batuliníw,* (11) *makatló,* (12) *maralí,* (13) *kirí-kirí* (this rice has the smallest grain), (14) *bwbkíl* (the variety with the largest

[64] "Neither the husband nor wife, during the latter's pregnancy may pick or touch a deformed or double banana lest twins be born. This applies generally only to a first pregnancy." Keith, H. G. A few Ulun-no-Bokan (Murut) taboos. Journal of the Malayan Branch of the Royal Asiatic Society 14 pt. 3 (1936) 328.

grain), (15) *binundók,* (16) *hanglág,* (17) *dusól,* (18) *kinatána* (a sticky variety), and (19) *inarupí.*[65] Although this list of varieties might appear sizable, it is not. The lowland, rice-growing Sambal in the Municipality of Botolan recognize and can enumerate more than fifty local varieties of wet and dry rice.

The Pinatubo Negritos are not successful rice farmers, and the yield from their crops are both poor and uncertain. The deeper Negritos do not cultivate rice—for example, the Negritos in the Bakláy area—and nowhere do the pygmies depend upon this crop. Rice is frequently planted with corn in the same or adjoining clearing, so that should the rice crop fail, the corn (and the ever available sweet potato) can be eaten. Rice is of relatively late prehistoric introduction to the Philippines, and I believe, of very recent historical introduction to the Pinatubo pygmies. William Allan Reed who travelled through the territory of the Zambales Negritos some 45 years ago noted that the pygmy ". . . does not plant rice to any extent."[66]

The Negritos eat far more rice than they grow, for many now work in the lowlands during harvest times, and are paid by the day with unhusked rice. Rice is usually a highly desired food. However, the more acculturated Negritos characterize the deeper Negritos as being very unhappy when only rice is the available staple, and when tuber crops (particularly, the sweet potato) are wholly lacking.

As noted, rice in the field is called *páli* (*páli,* Bot.-Sbl.), husked rice, *büyá* (*boyá,* Bot.-Sbl.), and cooked or boiled rice, *kaűn* (*kanín,* Bot.-Sbl.).

Patóla. Luffa acutangula (Linn.) Roxb.

The dishcloth gourd, like other members of the squash family, is only a minor garden crop. Its cultivation is confined largely

[65] The plant names *inabáka, kinumpánya, kinabíbi, kabalán, binundók,* and *dusól* are also found in Tagalog for varieties of upland rice. In addition, *doláro* in Pinatubo-Sambal appears as *dorádo* in Tagalog (r-l-d shift), and *marlí* as *dumalí'* (metathesis). *Hanglây* appears in Tagalog as *sangláy* which defines a delicacy made of cooked, sticky rice mixed with sugar and coconut milk. Note that many of the Negrito names for the varieties of rice include the sounds s and r indicating that these names have been borrowed rather recently, and have not yet shifted to h and d respectively which are the complimentary sounds in the Pinatubo dialect.

[66] Reed, W. A. Negritos of Zambales. Manila, Bureau of Printing (1904) 42.

to the Negrito groups on the lowest slopes of Mt. Pinatubo, and it is unquestionably of recent introduction to the Pygmies. The local name is commonly applied in the Philippines to this species, or to *Luffa cylindrica,* and is derived from the Sanskrit, *patola.*

Táü'. Colocasia esculentum (Linn.) Schott.

The taro or *gabe,* and the *úbi, Dioscorea alata* Linn., are the two most important food plants of early prehistoric introduction into the Philippines, and were very likely utilized by the Pinatubo Negritos during the late proto-historic period. The Pinatubo pygmies recognize at least twenty-two varieties of *Colocasia esculentum* which they group into two classes; the *táü'* carrying the generic name, and the *lukó.* In the group classified as *taü'* are the following: (1) *pinipučaán,* (2) *ulalátan,* (3) *matúpog,* (4) *maghúbong,* (5) *binayába,* (6) *binangúnan,* (7) *kinawáyan,* (8) *batlíngan* (two types of this variety are also recognized), (9) *inulállt,* (10) *maralí,* (11) *binató',* (12) *taká'-manók,* (13) *inalló,* (14) *layóhan,* (15) *binalíti,* (16) *kinamalíngaw,* and (17) *kinamalítik.* The *lukó,* which is differentiated by its darker stems and many suckers, includes at least five varieties: (1) *hudió,* (2) *inambalúngan,* (3) *lupíng,* (4) *bigá',* and (5) *talampákan.*

Like the tuber crops, the taro is hardy and requires little care. The Negritos usually plant the taro along the streams in still, shallow pools of water, or in damp areas, and then ignore the growing plant until it is ready to be utilized. Frequently, the Negrito groups may be living at considerable distances from the areas in which the taro had been planted. The utilization of this plant does not inhibit their semisedentary habits. The primary danger to the taro is swollen rivers and floods; accordingly, the taro is planted along the rivers after the rainy season during *buwán kalúwan* and *buwán láwa-láwa.* Some dry taro is planted in the clearings, just before the rainy season, and while the wet taro (that is, the taro planted along the rivers) is being harvested. This is during the months of *buwán palíkik* and *buwán bo:'.*

Escape varieties of the cultivated taro, called *batlíngan* or *táü'-batlíngan,* are common in the Pinatubo area, and these are utilized for food in the same manner as are the domesticated plants. The young leaves, called *lápa,* and the peeled stems are cooked as a vegetable. The fleshy undreground parts are peeled, cut into sections, and boiled. In addition, one variety called

binató', is used as a medicine for *dúko'*. This term describes the condition following childbirth in which the woman is having difficulty with the discharge of the afterbirth. The woman merely eats boiled mixture of the leaves and the fleshy underground parts.

The Pinatubo Negrito name for *Colocasia esculentum* is quite obviously related to the common Polynesian term, *taro*. Among the Tagbanuwa of Palawan, *talŭs* is the generic name for taro.

Talón. Solanum melongena Linn.

The pantropic eggplant, originally a native of India, is cultivated largely by the pygmies on the lowest slopes of Mt. Pinatubo (the groups nearest to the lowlands) and it is only a minor food product. I doubt, judging from the distribution and importance of the eggplant in the Pinatubo area, that it has ever been widely used by the pygmies. *Solanum melongena* is commonly known in the Philippines as *talong*, and among the sedentary cultivators is an important vegetable.

Úbi. Dioscorea alata Linn.

This yam is also a very important plant to the Pinatubo pygmies, and is extensively planted along the edges of the sweet potato clearings. The Negritos recognize at least twenty varieties, their identifications depending upon differences in the colors and sizes of the tubers and minor variations in the shapes of the leaves: (1) *badák*, (2) *balakhíw*, (3) *bisáya'*, (4) *bitangáw*, (5) *binanabá*, (6) *káhoy*, (7) *kagónaw*, (8) *kandúla'*, (9) *kalaíhan*, (10) *dulúng*, (11) *duwíyan*, (12) *hinandág*, (13) *inagtáy-pahínga'*, (14) *ólum-baki'*, (15) *mangópia'*, (16) *pinuyáwan*, (17) *taál*, (18) *tungáy*, (19) *úbin-kamána*, and (20) *wanóy*.

The tubers of the *úbi* are a primary food beginning in November through March, and are highly esteemed by the pygmies. The tubers are merely peeled, sliced, and boiled in water. One variety, the *taál*, is eaten—in addition to its value as a food—when a Negrito is spitting blood.

The local plant name, *úbi*, is encountered in most Philippine dialects.

Úngot-úngot bali. Momordica charantia Linn.

The young tops and fruit of this cultivated vine are used as a vegetable and are commonly cooked with fish dishes. Wild

forms of *Momordica charantia* are found in the Pinatubo area and are called merely *úngot-úngot*. As noted above, the term *balí*, the general word for "house," denotes that the one variety is cultivated.

The bitter leaf of this plant is also used as a medicine. It is touched to the lips of newly born babies as a protection against *taón* (see discussion of this sickness under Medicinal plants and practices). *Momordica charantia* is called *apalyát*, by some of the Pinatubo Negrito groups, a common name for this plant throughout the Philippines. *Úngot* is the Sambal word for the coconut palm, *Cocos nucifera* Linn.

CULTIVATED, SEMICULTIVATED, AND SPONTANEOUS FRUIT TREES OF PREHISTORIC INTRODUCTION

The following fruit trees, with the exception of the jackfruit, the santol, and the mango, are confined largely to the Villar area, to other Negrito settlements closest to the lowlands, and to the ranch sites of lowlanders who have in the past settled in the Pinatubo area. Although all of the following trees are well known to even the deepest Negritos, it is doubtful if the presence of any, except the jackfruit and mango, can be attributed to the purposeful planting activities of the Pinatubo pygmies. Aboriculture is not compatible with even the present semisedentary life of the Pinatubo pygmies.

Seven species of citrus are known to the Negritos and have local names, but all (except *Citrus hystrix* DC.) are of very recent introduction into the Pinatubo area, and are not native to the Philippines. The fruits of all are eaten, but those with a sour fruit, such as *Citrus microcarpa* Bunge and *Citrus aurantifolia* (Christn.) Swingle, are usually eaten only by the children. These later two are commonly employed by the lowland people as a food accessory, but this usage is not commonly found among the Negritos.

Kalamansíng. Citrus microcarpa Bunge.
Local names: *kalamansi'* (Tag.); *kalamunding* (Pamp.)

Dalandán. Citrus aurantium Linn.
Local names: *dalandán* (Tag.)

Dalanghíta. Citrus nobilis Lour.
Local names: *dalanghíta* (Tag.); *darangita* (Ilk.)

Daláyap. Citrus aurantifolia (Christn.) Swingle
Local names: *dáyap* (Tag.); *daláyap* (Ilk.)

Hígada. Citrus medica Linn.
Local names: *sidrás* (Tag.); *cidro* (Sp.)

Suhá. Citrus maxima (Burm.) Merr.
Local names: *suha* (Tag.); *sua* (Ilk.)
Makátba. Citrus hytrix DC.

According to Merrill, the *Citrus hystrix* is the only citrus in the Philippines which is apparently native. Moreover, this is the only citrus for which I could not readily find a cognate except in Botolan-Sambal, *malátbas.*

Katóh. Sandoricum kœtjape (Burm. f.) Merr.

The "santol" tree is thoroughly naturalized in the Pinatubo area at relatively low altitudes, and large numbers of the ripe fruit are gathered by the Negritos in July and August. The green fruit, which is quite sour, is cooked with fish dishes. There is no knowledge among the Pinatubo pygmies of ever having planted this fruit tree, and it has apparently been dispersed through natural agencies.

Manggá. Mangifera indica Linn.

The mango has been planted by the pygmies throughout the Pinatubo area, and large trees, now remote from living sites, are quite common. The fruit, as elsewhere in the Philippines, is highly prized. The Pinatubo Negritos also recognize one variety of this tree, the *píko,* which has a smaller, less delicious fruit. These two plant names are found throughout the Philippines. According to Merrill, the mango is of Indo-Malayan origin and may even be of historic introduction into the Archipelago.

Rímas. Artocarpus altilis (Parkins.) Fasb.

The breadfruit is sometimes found in association with the living sites of the more settled Negritos, and the fruit makes an excellent cooked vegetable. According to informants, the tree has appeared in the Pinatubo area only very recently. *Artocarpus communis* is called *rímas* in many Philippine dialects.

Yanká'. Artocarpus heterophyllus Lam.

The jackfruit is an important fruit tree and has rather an extensive distribution in the Pinatubo area today, both cultivated and wild. The mature fruit is very large, the largest of any known plant, and the flesh is delicious. In addition, the numerous seeds are edible, after being roasted or boiled. According to Merrill, this tree is of Malayan or tropical Asiatic

origin and was introduced into the Philippines by man during prehistoric times. *Lanká'* and *nanká'* are the local names for this tree throughout the Philippines.

RESPONSIBILITY IN THE PRODUCTION OF CULTIVATED FOOD PLANTS

The work of planing, maintaining, and harvesting the kaingin and garden crops falls largely on the Negrito women, including the old and the young. The Negrito men help in the heavy labor of making the clearings, and the older or infirmed men may continue to work with the women in the maintenance of the clearings. The occupations of the active men, the young and the middle-aged, are hunting, fishing, craft activities, and constant visiting. Even in food gathering activities, such as obtaining edible shells and shrimps in the rivers, and vegetables and fruits in the nearby forest, it is the women who also bear the brunt of the responsibility.

The Negrito men travel constantly throughout the entire Pinatubo area to visit, to recount tales of hunting and of the past war, and to discuss marriage and the problems facing their families. The women folk generally remain at their villages working the clearings and protecting the crops. This is also in consonance with the women's function of childbirth and responsibilities of child-rearing. The boys and young men possess a singular freedom. They will invariably be found along the rivers fishing, in the forests shooting birds, or merely accompanying the older men to visit relatives and friends. In fishing activities, the young men and boys make a marked contribution to the family larder. These patterns of responsibilities have created many problems for the teachers and administrators of the government school at Villar. As a group, the older people are entirely unsympathetic with the government's educational program, and like other Negrito groups in the Philippines, ask only to be left alone. They argue that the young girls are needed in the home to help in planting, maintaining, and harvesting the kaingin crops. The young boys, leading a life almost wholly unrestrained, find studying the arts of the chase far more exciting and meaningful than studying functionless arithmetic. When, for example, the migratory, Gray-faced Buzzard (*Butastur indicus*), called *tikwí*[67] by the pygmies is present in large numbers in the Pinatubo area during the months of September, October,

[67] *Tikwí* (Tag.)

and November, it is almost impossible to keep the boys and young men in school. All become involved in making bows, arrows, and blinds for hunting these birds.

Among the Negritos living closest to the lowlands who have adopted Sambal values, this division of labor is not as marked. However, at least theoretically, the production of cultivated foods is woman's work. Polygamy is not widespread today, as it has been in the past, and I have heard a number of men remark with regret and without jest, that having more than one wife was very advantageous, for the family would then have more food.

THE WILD FOOD PLANTS

The Pinatubo pygmies still utilize a sizable number and variety of uncultivated foods, specialized underground parts of plants, edible leaves and leaf tops, fruits, seeds, and so forth. They traditionally retain a still greater knowledge of the sources of wild foods, but their relative importance has been greatly diminished by the present cultivation of introduced plants. The following discussion of the wild food plants will give us a picture of the possible plant foods used by the Negritos during the prehistoric period.

A number of plants which have other more important uses are still, and have been to a much greater extent in the past, utilized for food. A common food in this category is the *labúng,* that is, the edible growing tips of bamboo. The skin is removed, and the tips cubed and boiled. The young shoots of many rattans, the *palahán,* are also prepared and eaten in the same fashion. The tender growing part of palms within the terminal crown of leaves, the *úbol,* yields a delicious, though rarely used, dish. This "palm cabbage" is usually sliced and boiled, but can also be eaten raw.

An edible starch, the *yúdo,*[68] is obtained from two species of palms common in the Pinatubo area; the *ágüh, Caryota cumingii* Lodd., and the *idúk, Arenga pinnata* (Wurmb.) Merr. The palms are felled, split into half, and the pithy interiors scooped out with a bamboo scraper. After being pounded, the pith is placed in a cloth, and water poured over the cloth. Then the cloth is wrung, and the liquid starch

[68] The Polillo Dumaguete call *Caryota cumingii* Lodd., as well as the starchy pith obtained from the palm, *yúdu'* (*pugáhan,* Pol.-Tag.). The Dumagats still utilize this food extensively, and boat-like, half sections of the used trunks of this palm are seen everywhere.

caught in a receptacle. This is repeated with the mass of the pith until all of the starch has been obtained. Finally, the water in the receptacle is poured off, and the starchy residue placed in a bamboo tube and cooked. The pith from the younger palms may also be eaten raw and even in this state is tasty.

The flower buds of the wild bananas are an ever handy source of food. The buds are peeled, sliced, and boiled. The buds of the cultivated and semicultivated varieties are invariably bitter, but these can also be eaten, if mashed (with or without salt) and washed a number of times. The Negritos in the Zambales Range obtain some income by trading large numbers of the flower buds of the wild bananas into the lowland towns.

The Pinatubo Negritos recognize, and have specific or descriptive local names, for at least forty-five types of edible ground mushrooms and ear-fungi. Unfortunately, these were not collected. The eleven most important ground mushrooms are: (1) *balhík,* (2) *kᵘwát-áday,* (*kᵘwát* is the generic term for all "mushrooms"), (3) *kᵘwát-amúkaw,* (4) *kᵘwát-bádah,* (5) *kᵘwát-kawáyan,* (6) *kᵘwát-lúta',* (7) *kᵘwát-tabakónaw,* (8) *kᵘwát-yábot,* (9) *lakálak,* (10) *malakamáy,*[69] and (11) *oóng.* One or more of these mushrooms is found in large numbers from June through October, and is an important additional source of wild food. The mushroom which grows around the bases of the stalks of the wild bananas, the *kᵘwát-amúkaw,* is large as well as plentiful, and even a few will provide an excellent meal.

The ear-fungi are obtained from specific trees which are, in part, important and meaningful to the Negritos due to this relationship. The pygmies can name with ease all of the trees which are hosts to the edible fungi. The most important and desired ear-fungus, *kIkItbán,* is found in sizable numbers on the trunks of the following trees: *anggagaí', Gomphandra luzoniensis* (Merr.) Merr., *ayangílan, Canangium odoratum* (Lam.) Baill., and *banáy-banáyin, Radermachera pinnata* (Blco.) Seem. All other types of ear-fungi are merely called *kᵘwát* (which we have seen is the generic term for mush-

[69] The name *malakamáy* has unquesetionably been borrowed by the Pinatubo Negritos, and very possibly from the neighboring Tagalog. In Tagalog this word means "like the hand (*kamáy*)," but the term *kamáy* has no meaning to the pygmies. Their word for hand is *gamát.*

rooms, plus the name of the tree-host. For example, the ear-fungus commonly found on the wild fig *awíli'*, *Ficus hauili* Blco., is called *kʷwát-awíli'*. The following trees are other important hosts of edible ear-fungi, and the fungus found on each is named in the same manner: *áymIt, Ficus minahassæ* (Teysm. and De Vr.) Miq.; *pangkó, Aralia bipinnata* Blco.; *tübóy, Ficus nota* (Blco.) Merr.; and *tItIphán, Ficus barnesii* Merr.

The names for most of the ground mushrooms (discussed above) are also derived in this same manner, that is, by denoting the plant-host on or near which they are found, for example, the *kʷwát-kawáyan. Kawáyan* is the general term for large bamboos and this mushroom is found in bamboo clumps.

Many poisonous varieties of mushrooms and ear-fungi are also found in the Pinatubo environment, and the pygmies traditionally recognize these dangerous types. The non-edible mushrooms and ear-fungi are invariably called *kʷwát-aníto,* that is, the "mushrooms and ear-fungi of the spirits."

SPECIALIZED UNDERGROUND PARTS OF PLANTS USED FOR FOOD

Plants having specialized underground parts—tubers, corms, rhizomes, etc.—were undoubtedly one of the most important sources of wild, native food during prehistoric times. These specialized underground parts are all called *lamán.*

Bakálang. Dioscorea sp.[70]

The tuber of this vine is mature beginning in *buwán báih* (approximately October), and is gathered until *buwán palíkik* (approximately April). The tubers are either boiled in water or merely roasted in the fire. No cognates were found for this plant name.

Bukyót. Dioscorea bulbifera Linn.

The large aerial fruit of this vine is apparently poisonous, and the pygmies do not normally use it for food. Nevertheless, informants reported that it could be eaten. One informant stated that if the fruit was merely peeled, roasted, and eaten while still hot, that it was not poisonous. Other informants stated that if the fruit was sliced and washed (see the discussion below of the preparation of *kalót*) that it could be eaten. The specialized underground part is also said to be poisonous. The confusion about the use of this plant, and

[70] Unfortunately, when this manuscript was written, none of Burkill's classic studies of the genus *Dioscorea* were available.

the statements of the Negritos, lead me to believe that it was only employed during periods of extreme food shortage, and even then with trepidation.

Though the plant is not an important food, it is widely used as a medicine by the Pinatubo pygmies (see discussion of *yükyük* under Medicinal plants and practices).

Butót. Dioscorea filiformis Blm.

Though relatively small, the tuber of this wild yam, is highly prized. The Negritos classify this plant as a small *duwíyan;* the latter is *Dioscorea divaricata* Blco. Harold Conklin found that the Tagbánuwa of Palawan and the Hanunóo-Mangyan of Mindoro call *Dioscorea esculenta* (Lour.) Burkill, *burót,* and the Tagbanuwa also call a species of wild yam *buntóg.*

Kabwáng. Dioscorea pentaphylla Linn.

This wild yam is also an excellent food and matures during the months of October, November, and December. The large, starchy tubers are merely roasted, or sliced and boiled. This yam is commonly called *líma-líma* by other ethnic groups in Luzon, because of the palmate arrangement of the leaflets. No cognates were found.

Kalót. Dioscorea hispida Dennst.

The rather shallow, large tubers of this prickly climber are very poisonous (containing a poisonous alkaloid called *dioscorine*) if merely boiled, or roasted, and eaten. However, if the tubers are properly prepared, they make an excellent food. The Pinatubo pygmies prepare this wild yam in one of two ways: (1) First, the tuber is peeled, cut into small pieces and salted, and then placed in a basket and washed in running water for approximately three days. Following this treatment it may be cooked and eaten. (2) The skin is removed, and the tuber is sliced as noted above. It is then washed for a short time in cold water. After washing, the tubers are boiled until the slices become yellow. This water is poured off, and the slices are reboiled. When this process has been repeated at least three times, the tubers may be eaten.

This wild yam is also called *kalót* by the Dinalupihan area Negrito of Bataan, and prepared for eating in essentially the same fashion.

Local names: *kolót* (Bis.); *kalút* (Tag., Pamp.); *karót* (Ilk.); *namí'* (Tag.)

Kamókik. Dioscorea pentaphylla Linn. (probably var., *palmata*).

This tuber is sometimes cultivated by the Pinatubo Negritos, but as we have noted, it is more commonly wild and called *kabwáng*. *Dioscorea pentaphylla* is not commonly under cultivation in the Philippines, but according to Burkill it is cultivated in northern India, the Malay Peninsula, Java, Amboina, and Fiji.[71] *Kabwáng* and *kamókik* have both been identified as *Dioscorea pentaphylla* Linn., but my Negrito friends insist that the two plants are different, hence, the distinct names. The fact that this yam is cultivated to a limited extent by the pygmies would produce a variation which, according to Burkill, appears in the Philippines as the variety *palmata*.

The large, starchy tubers are merely roasted or boiled. No cognates were found for this plant name, but it may be derived from the name for the introduced sweet potato, *kamóti*.

Kamóti-púyo'. Gonostegia reptans C. B. Rob.
Pouzolzia zeylanica (Linn.) Benn.

These two vines have small, specialized underground parts which are edible even raw, and both have wide distribution in the Pinatubo area. The local Negrito name means the "sweet potato of the quail,"[72] and denotes the superficial similarities of these plants, tubers, leaves, and flowers to *Ipomœa batatas*. *Gonostegia reptans* and *Pouzolzia zeylanica* belong to the same family Urticaceæ, and are somewhat similar phylogenetically, which would account for the Negritos identifying these two distinct species as a single plant.

Duwíyan. Dioscorea divaricata Blco.

This endemic vine has a long (sometimes nearly two meters), slender, edible tuber which grows very deep into the ground. It is considered by the Pinatubo pygmies as the most important of the wild yams, and they all look forward with great anticipation to the maturation of this yam in large numbers during the months of November and December. Huge holes in the ground where these tubers have been obtained are common in

[71] Brown, W. H. Useful plants of the Philippines 1 (1943) 402–403, has quotations from Burkill's study of the *Dioscorea*.

[72] The Button-Quail, *Turnix* spp., are called *púyo'* by the Pinatubo Negritos, and are very common in the grasslands.

the Pinatubo area, and present considerable danger at night, when hiking or hunting. All tubers are dug by means of the digging sticks or bolos, and in the case of the *duwíyan,* it may take the better part of one day.

Local names: *dulian, durian* (Ilk.); *dúyan* (Pang.); *bulóy* (D.-Neg.)

Lúbi-lúbi. Dioscorea cumingii Prain. and Burkill

The large tuber of this plant is merely roasted or boiled, and the Negritos consider it to be one of the best of the wild yams. The plant name is probably derived from *úbi,* a widespread name for the cultivated *Dioscorea alata.*

Úbin-búkil. Dioscorea sp.

According to the pygmies, a delicious tuber is obtained from this vine during the *kaingítan,* the dry season. This plant name means the *úbi* of the mountains. The combining form for mountain, is *búkil,* the free form is *bákil.*

Escape varieties of the *Dioscorea,* prehistorically introduced into the Philippines, are also common in the Pinatubo area and a present source of food for the pygmies. *Kopástak* is the Negritos' name for the escape variety of the very important goa yam, *baúgan, Dioscorea esculenta* (Lour.) Burkill. The tuber of this yam is available in sizable quantities during the early part of the dry season (approximately January and February). *Mapiyá'* is the Pinatubo term for the escape variety of the cultivated *úbi, Dioscorea alata* Linn. Both of these plants are thoroughly naturalized in the Pinatubo area.

Importance of the Dioscoreæ.—Undoubtedly, the tubers of the various wild yams (at least nine wild species and varieties) were one of the most important sources of food for the Pinatubo pygmies, and for other food gathering groups, during the prehistoric period. However, these tubers are seasonal in appearance, occurring during the latter part of the wet season and the beginning of the dry season, and could not have provided the basic subsistence throughout the year as does the sweet potato today. These wild yams still have great meaning to the Pinatubo Negrito despite the fact that they contribute less than 5 per cent to their present annual subsistence. Many times while traveling from village to village, or collecting plants, I have seen my Negrito companions become very excited upon finding a new location of a wild yam. By the time that the tubers are mature and can be gathered, all of the plants have

been spotted. Mr. Domiciano Darum, principal of the Villar Settlement Farm School for the Negritos, has pointed out that during times of extreme food shortage in the lowlands, for example, the failure of a rice crop, the Sambal pay the Negritos to gather these edible tubers.

Important rituals, such as the "fiesta of the spirits," the *iwí,* invariably, take place during December or January. The primary reason for this is the abundance of food, for a ceremony will attract large numbers of pygmies with healthy appetites and will last as long as the hosts can provide food. At present, food is abundant during these months because it follows the rice harvest, and as we have noted many of the Negritos work in the lowlands during the harvesting period, and are paid in rice. In addition, the sweet potato crop is usually large during this time of the year.

It is very likely, as tradition suggests, that this same ceremonial period was found during pre-Spanish times, for the important yams—both wild and cultivated species—mature during these months. Moreover, other wild foods are plentiful, hunting is good, and the rivers are clear, or beginning to clear, for fishing. The availability of wild food plants must have been an important factor in the past in determining the time of rituals, particularly, among people like the Negritos who live on a subsistence level. When it is remembered that the Pinatubo pygmies rarely store food, even today, this phenological relationship with rituals is even more forcefully suggested.

Bagűng. Amorphophallus sp.
Lagyában. Tacca leontopetaloides (Linn.) O. Ktze.

The tuber of *lagyában* contains a bitter principle, the corm of *bagűng,* stinging crystals, and these two plants are only eaten during periods of marked food shortage. The specialized underground parts of both are peeled, mashed, soaked in cold water, the water changed at least three times, and are finally cooked in a bamboo tube. In addition, the peeled stem of the *bagűng* makes an excellent cooked vegetable. No cognates were found for these two plant names.

EDIBLE LEAVES, LEAF TOPS AND FLOWERS

If the Pinatubo pygmies desire a vegetable, a large number of wild plants are readily available which yield edible leaves, leaf tops, and/or flowers. These may be boiled as a vegetable, or in the case of specific leaves (and fruits, as we shall see

later), added to fish and meat stews to provide a seasoning. A sizable number of plants are used to make fish and meat dishes sourish. These are called the *pag-áħüm,* and are enumerated below. The leaves of a few plants are added to the same dishes to give them an acrid taste, the *paghuplák* or *paghapí',* and the leaves of a very few plants, the *pagpay-ít,* to give the dishes a bitter taste. These latter leaves and leaf tops are never eaten alone, that is as a vegetable, but are only food accessories. This is a common practice among most Philippine groups; Christian and Non-Christian.

PLANTS USED FOR A VEGETABLE, THE *GúLAY*

Babáyan. Allæanthus luzonicus var. *glaber* (Warb.) Merr.

The young leaves, as well as the flowers and fruit of this tree, are cooked as a vegetable. This tree is also called *babáyan* in the Tagalog areas and among the lowland Sambal.

Balúbad. Ficus pseudopalma Blco.

The young leaves of this small tree are cooked merely as a vegetable or cooked mixed with *bag-óng.* The latter is a preservation made of salt and small shrimp or fish. The plant name *balúbad* appears in Tagalog for species of *Anacardium.*

Bulók-bulókün. Deeringia polysperma (Roxb.) Moq.

The young leaves of this vine are a commonly cooked vegetable. The Sambal in the Municipality of Botolan also call this plant *bulók-bulókün.*

Kalantípay. Entada parvifolia Merr.

When boiled, the *tadúk,* that is, the leaf tops or young leaves of this plant make an excellent vegetable. In Botolan-Sambal, this vine is called *kuripátung,* and has the same usage.

Katín-ay. Kleinhovia hospita Linn.

When cooked, the young leaf tops of this tree are edible. No cognates were found for this plant name.

Dangóy. Grewia multiflora Juss.

The young leaves of this shrub or small tree are also edible. This plant is called *danglün* in Tagalog and Ilokano, *dangloy* in Ibanag, and according to Merrill, *dongloi* in Sambal.

Liúhin-laním. Homonoia riparia Lour.

The young leaf tops of this shrub, which is abundant along the rivers (hence, *laním,* "water"), are used as a vegetable. *Liúhin* is also the name of a small tree growing in the forest, *Ardisia pyramidalis* (Cav.) Pers., and the same plant name is known to the Sambal.

Pakó'. Athyrium esculentum (Retz.) Copel.

The unfolded fronds of this fern make an excellent and popular vegetable. This fern is commonly sold as a vegetable in the markets throughout the Philippines. The plant name, *pakó',* is encountered everywhere in the Philippines, defining ferns in general.

Pakó'-buáya. Ceratopteris thalictroides Brogn.

The whole of this stout, aquatic fern, common along the edges of small streams, is a fine green. The local plant name is descriptive meaning the "crocodile's fern," and denotes the habitat of this plant.

Sáber-nókum. Telosma procumbens (Blco.) Merr.

The flowers and coverings of the immature fruit of this woody vine is one of the most widely cooked greens among the Pinatubo pygmies. No cognates were found for this plant name, but the appearance of the sibilant would indicate that the plant name was borrowed recently.

Salúyot-mantŭ́g. Corchorus acutangulus Lam.

The young leaves of this half-woody annual provide a good leafy vegetable. The Pinatubo Negritos call a number of plants *salúyot* (a common plant name in the Philippines), but classify this one as the *mantŭ́g,* "true," form. *Melochia concatenata* Linn., is called *salúyot-damᵘwág,* the "carabao's *salúyot,*" but unlike the "true" *salúyot,* has no use.

Tagálbag-dikót. Portulaca oleracea Linn.

All but the roots of this common weed, the "purslane," make a good vegetable. This plant name is autochthonous meaning "the grass with fruit which the birds do not eat."

Túkod-túkod. Helmintostachys zeylanica (L.) Hook.

The tender fronds and stem of this fern make a good green and can be eaten raw as well as cooked. The single, erect stem of this plant has undoubtedly provoked the local names,

for example, *túkod-lángit* in Tagalog, the "cane (*túkod*) of the sky (*lángit*)." It would appear that the local name *túkod-túkod* had been borrowed by the pygmies, for *tIkín* is "cane" in Sambal. This fern is used extensively in the Philippines as a food.

It is noteworthy that ferns are a common and important source of vegetables among the Pinatubo pygmies and among other ethnic groups in the Philippines.[73]

THE PAG-ÁHÜM

The leaves of the following plants are cooked, as we have noted, with fish and meat dishes to give them a sour taste, or to remove the *langhít,* "fish odor," from the dishes:

Balináknak. Embelia sp. (probably *philippinensis* A. DC.)

(woody vine) Local names: *balako-o* (Ig.); no other cognates were found.

Bulináy. Antidesma pentandrum (Blco.) Merr.

(tree) Local names: *bulináy* (Bot.-Sbl.); *bignay-pugo* (Tag.); *burnay-kalabaw* (Tag.)

Dalanŭp. Tetrastigma sp.

(vine) The fruit is also edible. No cognates were found and this plant name is not known to the lowland Sambal.

Kalibangbáng.[74] *Bauhinia malabarica* Roxb.

(tree) Local names: *alibangbang* (Tag.); *kalibangbang* (Ilk.); *kalibanbang* (Tag. and Pang.)

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[73] *Cf.*, Quisumbing, E. Orchid companions—ferns. Philip. Orchid Review 3 (1950) 26, for a discussion of ferns used as food.

[74] An etymological analysis of the plant name *kalibángbang* vividly demonstrates a thesis which will be discussed at length elsewhere, that is, that plant names in the Philippines are mostly local descriptive terms, coined by this or that group of people, which when borrowed and diffused, lose their meaning, and become specific terms. The Pinatubo Negritos consider the plant name *kalibangbáng* a specific term stating that it has no meaning. However, the retuse leaves of *Bauhinia* spp., particularly when folded, closely resemble the wings of a butterfly, and butterflies are called *kalibángbang* or *kulibángbang* (Bik.), *alibángbang* (Bis.), *salibangbang* (Pol.-Dum.), and similar variants in other dialects! In Sambal and Tagalog, the butterfly is called *palúpaló* and *parúparo* respectively, and it is obvious that this plant name was not coined by the Sambal or the Tagalog, but borrowed.

Damímí. *Begonia* spp.

(herb) Species of *Begonia* are commonly employed throughout the Philippines for souring fish dishes. No cognates were found for this plant name. The Negritos in the Fort Stotsenberg area on the eastern side of Mt. Pinatubo call *Begonia* spp., *pingól;* the Polillo-Dumagat, *kumambí,* and the Polillo-Tagalog, *balangúbang.*

Dulimán. *Stenochlaena palustris* (Burm.) Bedd.

(fern-vine) Local name: *dilimán* (Tag.)

Lanatnát. *Tetrastigma* sp.

(vine) Local name: *barinatnat* (Ilk.)

THE PAGPAY-ÍT

The leaves of the following plants are cooked with fish and meat dishes to give them a bitter taste:

Papay-ít. *Mollugo oppositifolia* Linn.

(herb) This plant name is derived from the term *paít* or *pay-ít* which is a common word-base for "bitter" in many Philippine dialects.

Untíh. *Solanum nigrum* Linn.

(weed) This plant was probably accidentally introduced into the Philippines by man during the prehistoric or early historic period, but is included in the discussion here for functional reasons.

THE PAGHUPLÁK OR PAGHAPÍ'

The leaves of this plant (unfortunately, the only one with this usage collected) are cooked with meat or fish dishes to give them an acrid taste:

Túbtub-úlo. *Illigera luzonensis* (Presl.) Merr.

(vine) This is a descriptive local name meaning "head cover."

WILD PLANTS WITH EDIBLE FRUITS

Fruits which are rarely utilized, and which are frequently unknown to the more sedentary Philippine people, are commonly eaten by the Pinatubo pygmies. Probably, not a single edible fruit in the Pinatubo environment is unknown to the Negritos, for as we have seen, they actually test the food potentialities of the plants in their territory. The recognition of all potential sources of food has meant (and still does to a limited extent) the difference between living, even if merely on a subsistence

level, and starvation. The larger edible fruits, such as the *katóh, Sandoricum kœtjape* (Burm. f.) Merr., which we have seen is of prehistoric introduction but now thoroughly naturalized, the *lumbóy* or *dúhat, Syzygium cumini* (Linn.) Skeels; the *alopáy, Nephelium mutabile* Blm.; and others, are still a fairly important source of food. The women, and sometimes the young men and boys, will go considerable distances to collect these fruits for the family. On some occasions, a whole family or village group will temporarily leave their living site and clearings to gather fruits in other areas. The fruit is either consumed on the spot with game or fish which were caught on the trip, and with sweet potatoes which are always carried, or the women will transport large loads of fruit in pack baskets back to their village.

FRUITS USED AS A VEGETABLE

Bálbas-bakéro. Momordica cochinchinensis (Lour.) Spreng.

This vine has a very large, spiked, yellow fruit which when sliced and cooked is a tasty vegetable. The local descriptive name means the "cowboy's beard," and both words are derived from Spanish.

Hóhon-damᵘwág. Uvaria rufa Blm.

The fruit of this climbing shrub is most commonly cooked as a vegetable but can also be eaten raw. When translated, the local name means the "breast of the water buffalo," and describes crudely the shape of the fruit clusters. In Tagalog, this vine is called *súsong-kalabáw* which has the same meaning.

SOURISH FRUITS USED TO SEASON FISH AND MEAT DISHES

ÁyhIp. Antidesma bunius (Linn.) Spreng.

(tree) Local names: *áyhÍp* (Bot.-Sbl.); *isip* (Pamp.)

Kalibangbáng. Bauhinia malabarica Roxb.

Dalín. Flacourtia indica (Burm. f.) Merr.

(tree) No cognates were found.

Díngin. Dillenia philippinensis Rolfe

(tree) Local names: *díngin* (Ilk.); *díngin* (Pol.-Dum.); *katmón* (Tag.). The fruit of this tree can also be eaten raw, and though somewhat sourish, is very tasty.

WILD FRUITS (MOSTLY SWEET) WHICH ARE EDIBLE RAW

Ágay-ágay. Bridelia glabrifolia (Muell.-Arg.) Merr.

(tree) Local name: *ágay* (Tag.)

Áymit. *Ficus minahassæ* (Teysm. and De Vr.) Miq.

(tree) Local names: *arinit* (Ting.); *ayímit* (Tag.); *gimit* (Sub.); *hasimit* (C. Bis.); *agimít* (Pol.-Dum.)

Álob-álob. *Bridelia stipularis* (Linn.) Blm.

(vine) Local name: *lubalub* (Tag.)

Alopáy. *Nephelium mutabile* Blm.

(tree) Local names: *halupay, alupay, alupak* (Tag.); *alupak* (P. Bis.); *halopag* (Pol.-Tag. and Dum.) for *Euphoria didyma* Blco., also having an edible fruit.

Balákbak. *Syzygium* sp.

(tree) Local names: *balákbak* (Bot.-Sbl.); *balákbak* (Ig.)

Baliliwan or *mahoplák.* *Grewia eriocarpa* Jesus

(small tree) Local names: *bariuan* (Ilk.); *baruan* (Ig.); No cognates were found for *mahoplák.*

Balinháy. *Buchanania arborescens* Blm.

(tree) Local names: *balingasai* (Ilk., Tag.); *balinsud* (Mang.); *balinghasai* (Tag.).

Ballíwüt. *Ethretia polyantha* R. Br.

(tree) Local name: *ballíwüt* (Bot.-Subl.)

Banayúyu. *Antidesma ghaesembilla* Gaertn.

(small tree) Local names: *banayúyu* (Bot.-Sbl.); *baniyuyo* (Tag.). The taste of this fruit is somewhat acrid.

Búwa-úngot. *Ixora philippinensis* Merr.

(large bush) A descriptive, locally coined plant name.

Búwa-kabwá. *Alpinia brevilabris* Presl

The fruit of this herb, appearing at ground level, is highly prized by the Pinatubo Negritos.

Kalyámat. *Ficus bakeri* Elm.

(woody vine) No cognates were found.

Kamí'ing. *Semecarpus cuneiformis* Blco.

(tree) Local names: *kaming* (Pamp., Tag.); *kamiring* (Ilk.)

Kapurál or *ótoy-ótoy.* *Salacia philippinensis* Merr.

(vine) Local names: *otoi-otoi* (Ig.) for *Mussaenda benguetensis* Elm; no cognates were found for *kapurál.*

Dalakít. *Amomum* sp.

The fruit of this *Zingiberaceae* also appears at ground level, and in some areas of Pinatubo it can be gathered in sizable quantities. *Dalíkan* appears in the Manobo and Bagobo dialects of Mindanao for *Amomum* spp. I have also seen the Polillo Dumagat gathering large quantities of this fruit. Among the Dumagat, the plant is called *apédí* or *arimungáyín,* and among the Polillo Tagalog, *bag-áng usá,* the "deer's molar."

Dapúyan or *alpúgan. Lèptosolena haenkei* Presl

(large herb) No cognates were found.

Gihigíh. Ficus blepharostoma Warb.

(tree) Local names: *gisgís* (Bot.-Sbl.); *isís* or *asís* (Tag.) *alasas* (Pamp.). All of these local names are related to the idea of "rub against," for as we shall see, the leaves of this tree are commonly used for a sandpaper.

Lumbóy or dúhat. Syzygium cumini (Linn.) Skeels

(tree) Both of these plant names are found in many Philippine dialects.

Malapučing or *palumboyín. Syzygium similis* (Merr.) Merr.

(tree) *Panglongbuyen* (Ilk.) for *Eugenia* spp., but no cognates were found for the Negrito name *malapučíng,* or *pučíng.*

Magtatalóm or *tanggútum. Solanum* sp.

(shrub) Local names: *malatalóng* (Tag.). The Negrito and Tagalog names mean "like the egg plant," *Solanum melongena* Linn. No cognates were found for *tanggútum.*

Panílun or *panínglun. Buchanania microphylla* Engl.

(tree) Local name: *palilin* (Tag.)

Panóypoy. Kolowratia elegans Presl.

(large herb) No cognates were found.

Páo'-mantüg. Mangifera altissima Blco.

(tree) Local name: *paho* (Tag., Bik., P. Bis.)

Tambák. Alpinia haenkei Presl.

(large herb) Local names: *talbak* (Tag.); *tagbák* (Tag.)

THE WILD BANANAS

The Pinatubo pygmies recognize and utilize four varieties of wild bananas, *Musa errans* (Blco.) Teodoro, which are

endemic, namely, the *amúkaw, botólan, alháng,* and the *kumbáti.* These bananas are a mass of seeds, and although they can be eaten, are important primarily for their juice, the *inúnab.* A large number of the fruits are peeled and mashed by hand into a basin made of banana leaves. Water is then added to the pulp, and it is allowed to set for a few minutes. With a cup, also made out of a banana leaf, the juice is dipped out of the basin, and has a pleasing, sweet taste. As we have noted, the flower buds of the wild banana make an excellent cooked vegetable. Unlike the domesticated varieties of the bananas, the buds of the wild plants are not bitter. The fruit of the wild banana is also used as a bait to attract birds to a blind, and the dried sheath of the stalk has many uses.

WILD PLANTS HAVING EDIBLE SEEDS

A sizable number of plants in the Pinatubo environment yield edible seeds which are gathered and eaten by the pygmies, but unfortunately, only the following eight plants were collected and identified:

Aklíh. Albizzia acle (Blco.) Merr.

The seeds of this large tree are roasted and then pounded to obtain an edible meat. According to Merrill, the plant is called *aklé* (or *aklí*) in Tagalog, Pampangan, and Panay Bisaya.

Balakatán. Canarium sp.

The nuts of this large tree are merely split and the meat obtained eaten raw. This tree is also called *balakatán* by the Botolan Sambal.

Bangál. Sterculia foetida Linn.

The seeds of this tree may be roasted and eaten, or merely eaten raw. If consumed in large quantities, these seeds will act as a violent purgative. The r-l-d sound shift is perfectly illustrated, when comparing Philippine plant names for *Sterculia fœtida; bangál* (Sbl.), *bangár* (Ilk.), and *bangád* (Ibn.)

Balinawnáw. Otophora fruticosa (Roxb.) Blm.

The small seeds obtained from the fruit of this tree are mixed with hot coals, and toasted. This tree has the same local name in Tagalog, Pampangan, and Panay Bisaya.

Kuliyát. Gnetum indicum (Lour.) Merr.

The fruit of this vine is peeled and roasted, and after cooling, is pressed to obtain an edible kernel. According to Merrill, this same plant is called *koliat* in Tagalog.

Daydáy. Dysoxylum arborescens (Blm.) Miq.
Dysoxylum altissimum Merr.

According to the Negritos, the seeds from these two trees are peeled, placed in a bamboo tube without water, and roasted. This plant name is widely encountered in Philippine dialects.

Hakít. Terminalia sp.

The seeds of this large tree are merely split, and the meat eaten raw. Species of *Terminalia* are called *sakát* in Tagalog and Pampangan.

Pawhápi. Anisoptera thurifera (Blco.) Blm.

According to the Negritos, this large tree yields a seed which may be pounded and eaten raw, or toasted. This plant is called *paluhápi* in Botolan-Sambal.

AN ANALYSIS OF THE PROBABLE SOURCES OF NEGRITO FOODS DURING THE HISTORIC AND PREHISTORIC PERIODS

The numerous wild food plants which have been discussed above, and which only include the species identified from my field collections, show how the pygmies were once able to live without recourse to cultivation. The importance of this knowledge to the Negritos was strikingly pointed out during the past war, for it was these same plants which enabled the Pinatubo pygmies to survive while being harassed by Japanese patrols—due to the presence of many guerrilla outfits in the Zamblaes Range—and while unable to make clearings to plant the sweet potato, corn, and other crops.

In the following two tables, an attempt has been made to summarize the probable sources of the Negrito's foods, as well as the proportional values of each, during the recent (historic) and earlier prehistoric periods:

TABLE 1.—*Annual subsistence—recent (historical).*

Sweet potato (*Ipomoea batatas*)	.53
Corn (*Zea mays*)	.14
Meat	.08

Uncultivated foods (including tubers, vegetables, fruits, mushrooms, wild bananas, seeds, etc.)	.07
Táü' (*Colocasia esculentum*)	.05
Úbi (*Dioscorea alata*) and *baúgan* (*Dioscorea esculenta*)	.05
Bananas (cultivated and semicultivated varieties)	.05
Módos (*Manihot utillissima*)	.015
Cultivated vegetables and fruits	.01
Rice (mostly imported, but some grown by the more acculturated Negritos)	.005
	1.000

It is seen in Table 1 that approximately 70 per cent (!) of the Pinatubo pygmies present food is derived from plants introduced during the Historic Period from the New World, and that about 53 per cent of their present annual subsistence is obtained from a single plant, the American sweet potato. For weeks, meal after meal, their only food is the boiled sweet potato, and perhaps an *úlam,* that is a meat or other food served with the main starchy dish. When the corn is being harvested, the pygmies eat day after day only the boiled or roasted ears. The dominance of these two crops has produced a tremendous change in their food habits, as well as changes in other aspects of their life. In the past, for example, the pygmies must have utilized a tremendous variety of food plants, for no one plant could have provided the basic subsistence which the sweet potato does today.

House-lot vegetable gardens are poorly developed despite the fact that most of the numerous vegetables found in the Philippines are known to the Pinatubo Negritos. At present, the pygmies have no real taste for cultivated vegetables, nor do they seek a varied diet. Of course, a large number of forest greens are available, but even these are not extensively utilized now.

Many surrounding peoples closely associated with the Pinatubo pygmies, particularly individuals who have attempted to work with the Negritos, characterize them as being singularly lazy. These critics point out that their tools are crude, talk an occupation, and note that the Negritos exert no real effort to develop their house-lot gardens and clearings. Their diet is extremely monotonous, and certainly not sufficient. Malnourishment among the children and adults is common, and the infant mortality rate is unbelievably high. The question as to why this is relatively true when, as we have noted, the Negritos have available a sizable number of cultivated plants which

could give a far better diet, and when they have seen the contrasting life of the lowland Filipinos with its many material advantages, involves examining briefly the basic attitudes and values of the pygmies, as well as the traditional forces which have produced this seeming lethargy on their part.

In the first place, the historical associations of the pygmies are entirely different from the surrounding people who have been involved in sedentary cultivation of foods, and other economic plants, for many hundreds of years. The association of the Negritos with cultivated plants must be reckoned in a few hundred years—excepting perhaps the taro and yams which did not produce a marked change in their habits—and the many attitudes which were a product of thousands of years of food gathering, hunting, and fishing have survived. I have seen Negritos hunt pigs continually, night and day, involving great personal hardships, without a single word of complaint. In contrast, a few days work in the clearings, even a few hours, will stimulate numerous remarks about the difficulties.

Secondly, the Negritos still lack the knowledge of the proper techniques of food production, the "know-how," and the yield of their crops with the exception of the sweet potato is frequently so uncertain as to be very discouraging. The Negritos do not share the philosophy that those who work the hardest reap the rewards. A good crop, for example, is more the favor of the spirits than the consequence of "mere labor." A man who is a good hunter is favored with *galing,* that is, a lucky power. Rarely is a good hunter praised for his skill, but rather, envied for his luck. Good health is a sign of harmonious relationships with the super-naturals. The individual places relatively little faith in his own mundane efforts.

Thirdly, Negrito life is basically communal. There is little chance for the development of great personal ego; hence, the relative absence of powerful leaders, master craftsmen, and culture heroes. Competition between individuals or family groups is not only lacking, but discouraged. Most of their activities are communal; for example, hunting. Following the kill, fixed shares are distributed to the participants, to the owners of the dogs and to the dogs themselves and to individuals who owned bows and arrows used in the hunt. Even if a lone hunter kills a pig, it is shared by every member of the community, and portions are sent to friends and relatives in other villages. If a family has an unusually good crop, it does not mean that this particular family will profit from an abundance of food,

but that all members of the village will have an increased larder. An excess of food within an extended family will stimulate a *talbŭng*, a projected marriage, or other ceremonies, and the neighboring population will be invited. There are no provisions for storage or conservation, nor would group attitudes support such a behavior on the part of a family. It is impossible to refuse a request from a relative to share food, as a matter of fact, any personal property. Furthermore, it is dangerous to refuse a request from even a stranger. It is believed that the *mangkokólam*, a person who possesses the evil power *kólam* which causes sickness, travels from house to house asking favors, and if he (or she) is refused will manipulate the *kólam* causing the inhospitable person to become very ill.

I have witnessed a curing-séance for a woman who had the reputation of being selfish, specifically because her boys frequently caught many fish in the rivers, and she did not share them with other households in the village. She began to have violent headaches, and finally appealed to the local medium for aid. The séance was held, and she was told by the spirit-helpers of the medium that selfishness had caused her illness. If she wished to become well, she would have to change her "custom."

These attitudes greatly inhibit "modern" Negritos who through training, schooling, or association with lowland people, have adopted new values favoring a competitive life, and who seek to improve their own economic status, or that of their immediate family. This was strikingly pointed out to me in 1947, as described below, while I was living at Villar:

Mr. Domiciano Darum, principal of the Settlement Farm School, appointed two young Negrito men as teachers, for he wisely felt that he could obtain greater cooperation from the Negrito population by this move. Through personal drive, intelligence, and industriousness, these two men had worked through school, and had achieved these responsible positions. They were in a position to enjoy considerable personal profit, for themselves and for their immediate families, from their salaries. Following traditional patterns, however, their households were soon crowded with relatives who had come to live with them, and share their good fortunes. If one of the men bought clothing for himself, or for members of his immediate family, it was soon shared by members of his extended, and now larger, family. Daily requests for aid and favors were asked by all of their distant relatives and friends, and as the two teachers were known to enjoy an economic advantage, they could not refuse without creating antagonisms and without destroying the advantages for the school which had developed through their appointments. Thus, the two

teachers and their respective families obtained practically no personal economic reward. Moreover, their respective status in the Negrito community was not improved, for they were intimately identified with a program which did not receive popular support.

TABLE 2.—*Annual subsistence—prehistoric period.*

Wild food plants:	
13 plants, at least, yielding edible tubers, corms, etc.	
13 plants, at least, having edible leaves and flowers utilized as a vegetable	
10 plants, at least, with flowers and leaves used to season fish and meat dishes	
2 plants, at least, having fruits utilized as a vegetable	
4 plants, at least, having fruits used to season fish and meat dishes	
24 plants, at least, yielding edible fruits (mostly sweet)	
8 plants, at least, having edible seeds or nuts	
A total of, at least, seventy-four (74) native plants utilized for food, as ennumerated above, plus the fruits and flower buds of the wild bananas, mushrooms, the edible growing tips of bamboos and rattans, the "cabbage" within the terminal crown of leaves of palms, and the starch obtained from palms	.50+
Meat (including the wild pigs, deer, civets, monitor lizards, pythons, bats, birds, monkeys, frogs, fish, eels, shrimps, crabs, insects, snails, ants, etc.)	.50—
	1.00

Assuming that there has been no great relative change in the indigenous sources of plant and animal foods and based upon the Negrito's experience during the past war when they could not plant or obtain food from the lowlands and reverted to food gathering, hunting and fishing, I estimate that plants were a greater source of food than animals in the past, that is, during the period prior to the introduction of cultivated plants. In Table 2, therefore, plants should be given a relative weigh of more than 50 per cent and animal sources of food less than 50 per cent but it is impossible to establish any precise percentage relationships of the relative importance of the two sources of food.

Some of the wild food plants which are today only a potential source of food and of very minor importance due to the intrusion of exotic crops, for example, the edible growing tips of bamboo and rattans, starch obtained from the palms, etc., must have been of great importance during the prehistoric period. Furthermore, wild food plants were undoubtedly more plentiful during the prehistoric period, their sources being

relatively unchallenged by other large groups of people. I strongly suspect that lowland and coastal areas were commonly within the movements of the Zambales Negritos during early prehistoric times, for much of this area was probably uninhabited. When other expanding people, such as the Sambal, began to move into the coastal and lowland regions, the pygmies were forced into the mountains. Historical records show that the pygmies in the Zambales Range were in constant fear of slavery. The name of the province of Bataan, which has been the home of many pygmies, means "servant." Even today the movement of lowland settlers into the mountains is forcing the Negrito into more undesirable and inaccessible areas. I do not believe that the Pinatubo pygmies are survivors of "forest dwellers," but rather have been forced into the upland regions through population pressure. This thesis is supported by the ethnobotanical evidence, for as we have noted, the plants with which the pygmies are familiar are predominately from low and medium altitudes.

The large number of edible clams, as well as reef fishes, turtles, etc., found along the coast would have greatly increased the food supply of the pygmies during the early prehistoric period. Moreover, other coastal plants would have been available for food. The many techniques of trapping, hunting, and fishing which are known today but are relatively of minor importance, must also have been more fully utilized during the prehistoric period: bird blinds, snare traps, pitfalls for the wild pigs and deer, driving animals by burning as well as providing young grass on which the animals feed, diverting and drying streams to gather fish, eels, and shrimps, and many other techniques. These will be discussed thoroughly in following sections of this manuscript.

It is also very likely that during the late prehistoric period, the "proto-historic" period as defined by Beyer, that the Zambales pygmies began to cultivate specific foods. The yams, taro, better varieties of bananas, and a few vegetables, were introduced, as we have noted, beginning three or four thousand years ago accompanying waves of Neolithic culture which swept into the Philippines. Even if these cultivated plants were introduced after the pygmies settled in the Archipelago, as we are certain they were, it would not mean that the Negritos, and particularly the Pinatubo Negritos, did not use these plants until very recently. The present culture of the Pinatubo pygmies is a product of continued borrowing, and of prolonged

contact with other ethnic groups. Their language, and a greater part of their customs, are related to the Sambal, and it is almost a certainty that the Pinatubo Negritos would have borrowed and utilized any cultivated plant which could have been adjusted to a semisedentary life, as the yams, taro, and the banana can, when the advantages of these plants were first known! The diffusion of the sweet potato and corn in the Philippines during recent times is an excellent illustration of this thesis.

It is also very possible that the Negrito practiced a crude semicultivation of the wild yams, the Dioscorea, during the earlier prehistoric period. Today, the *kálot, Dioscorea hispida* the *lúbi-lúbi, Dioscorea cumingii,* and the *úbin-búkil, Dioscorea* sp., are all semicultivated. When the Negritos obtain the tubers of these wild yams, they leave a small portion with the eye so that the tuber and plant will grow again! In the case of the *kálot,* they may even transplant a portion of the tuber, which accounts for the fact that these plants are frequently found along the edges of deserted clearings.

NON-FOOD PLANTS OF PREHISTORIC INTRODUCTION

In addition to the food plants introduced during the prehistoric period, a number of other very important plants, useful in many other ways, were carried into the Archipelago by the prehistoric invaders. Of these, at least nine are known to and utilized by the Pinatubo pygmies:

Bantákan. Coix lachryma-jobi Linn.

The hard, whitish seeds of this coarse grass, commonly known as "job's tears," are one of the most common mediums for ornamental necklaces worn by the young girls and women. In addition, these seeds are sometimes worn by both the men and women, as a protection against, and cure for, cholera.

The Ipági-Egóngot of Quezon Province use the seeds of this grass as a food substitute for rice, preparing it in the same fashion as rice, but the Pinatubo Negritos are wholly unaware of the food potentiality of this plant. The Polillo Dumagat also make attractive necklaces out of the seeds of this plant, which as a matter of fact is a widespread practice among the Philippine Non-Christian groups, and the Polillo Tagalog boil the roots of this plant and drink the decoction when it is difficult to urinate.

A careful study of the geographical distribution of the use in the Philippines of the seeds of *Coix lachryma-jobi* as a food might define prehistoric cultural ties of specific ethnic groups in the Philippines with groups in Asia, as well as the direction of movements of people into the Philippines. As noted above, the Egóngot use this plant for food, but the Zambales Negritos are wholly unaware of its food potentiality. This is to be expected, for the Egóngot are believed to be "Indonesian," and to have come from the Indo-China or South China coast where this plant is extensively utilized as a food. On the contrary, the ancestors of the pygmies undoubtedly reached the Archipelago before the "job's tear" was introduced and before this plant had become spontaneous. The Negritos have never learned its basic food value and have merely utilized it for ornamental purposes as do most Philippine people.

A distributional study of the use of the exotic Indian millet, *Setaria italica* (Linn.) Beauv., which I have not seen in Zambales, might also suggest significant historical relationships.

Local names: *balantákan* (Pamp.); *bulákot* (Egn.); *tigbí'* (Tag.); *kudlásan* (Dum.); *kudlásan* (Pol.-Tag.).

Búnga'. Areca catechu Linn.

Though the areca nut palm is rather rare in the Pinatubo area, the Negritos state that the outer hardwood of an old betel palm makes good bows. The finished bow is lighter in color than bows made of the "palma brava," and the single specimen which I have seen was very attractive.

The Pinatubo pygmies are not, as a group, betel chewers, although some individuals living adjacent to the lowlanders do chew. Rather, the young men prize white, pointed teeth, and often wash their teeth using abrasive river-sands. On the contrary, the Negritos of Bataan chew betel extensively, as do most of the surrounding lowland groups. The incised bamboo lime containers, and the small sling baskets used for holding the ingredients for betel chewing, which are common among the Bataan Negrito, are entirely absent in the Pinatubo area.

Though entirely a conjecture, I do not believe that betel chewing is a Negrito characteristic in the Philippines, and the behavior of the Pinatubo pygmies in this respect typifies the behavior of the early pygmy immigrants. As noted, the areca palm is of prehistoric introduction, and is usually cultivated

by the groups who chew betel, but cultivation of trees of any description is not typical of the pygmy groups.

Bo:'-mantŭg. Gigantochloa levis (Blco.) Merr.
Kawáyan-mantŭg. Bambusa spinosa Roxb.
Kawáyan-kilíng. Bambusa vulgaris Schrad.

As pointed out by Merrill,[75] these three widely distributed and important bamboos are very probably of prehistoric introduction into the Philippines. Their pattern of distribution in the Pinatubo area also shows that they are exotic and have been originally planted by man at one time or another. At present, the Negritos only cultivate the *Bambusa vulgaris,* and then only to a very limited extent. Very probably, pagan Sambal have been primarily responsible for the appearance of these three bamboos in the Pinatubo area, for the Sambal still plant these bamboos extensively. In some areas where the Negritos live the supply of these bamboos is periodically exhausted, for they take approximately one year to mature and are being used constantly. It is often necessary for the Negritos to go considerable distances to gather these bamboos, until the local sources are regrown.

The molding effect of specific plants upon cultures is vividly illustrated by the almost innumerable methods in which the Pinatubo pygmies utilize bamboo. The life of the pygmies must have been very different, and more difficult, when these three bamboos were not available.

The thin walled *Gigantochloa levis* is frequently used for the walling and roofing of the dwellings, and when the house posts and floor joists are made from *Bambusa spinosa,* the whole dwelling is composed of only bamboo (see Plate 11, fig. 2). In addition, the large storage baskets called *buklót,* fences, traps, fishing poles, and the projectile points for the "belatic" types of traps, are made from *bo:'-mantŭg.* The three-holed, mouth flute called the *bulungújong* is also fashioned from this bamboo.

Kawáyan-kilíng is used principally for tying fences and parts of the house, after being carefully split and trimmed, or for making a twisted "rope."

Kawáyan-mantŭg is the most important of all the bamboos, and has so many uses that it almost defies enumeration. Parts of the dwellings, household items, children's bows, men's combs,

[75] Merrill, E. D. An enumeration of Philippine flowering plants. Manila Bureau of Science 1 (1925) 94–96.

the "jew's harp," called the *kulibáw,* the zither or *tabüngbüng,* a drum used in ceremonies for the spirits, the *talíbüng, a* telescopic bamboo container for the strike-a-light and for other personal effects called the *bólo-bólo,* the fire-saw or *pay-úwa,* baskets, traps, cordage, and many other items are made from this bamboo.

Though as we have noted, these three bamboos are of prehistoric introduction, further treatment of their uses will appear in the following sections of this monograph along with the indigenous and endemic plants. This has been necessary because of their present functional importance, and the difficulty in abstracting for analysis their multitudinous uses.

Dialectical variants for the plant names of these three bamboos appear in most other Philippine dialects.

Kalawág. Curcuma longa Linn.

The rhizome of this plant, which according to Merrill is a native of India, is scraped and pounded to obtain a yellowish powder. This powder is mixed with coconut oil, *asíti,* and powdered lime, *ápoy,* and then pasted on swollen parts of the body. In addition, the juice obtained from the rhizome is rubbed on the enlarged stomachs of children. The method of coloring meat using the yellow dye obtained from the rhizome, which is extensively employed by the surrounding lowland groups, is known to the Pinatubo pygmies, but rarely utilized. Meat cooked in this manner is alleged to be more tasty. *Kalawág* or *diláw* (the later is a descriptive name meaning "yellow," and denoting the color of the rhizome) are the local names in Tagalog, and Merrill notes that *kaláuag* appears in Manobo and Bisaya.

Hamát-mantűg. Piper betle Linn.

The leaves of this vine, the "true" betel leaf, are wrapped to the throat and held in place by a cloth band, for a bad cough. *Hamát-bakí', Piper interruptum* Opiz., a native plant meaning the "monkey's betel leaf," is also used in the same fashion. *Piper betle* and *P. interruptum* are called *samát* in Tagalog, Pampangan, and in other Philippine dialects.

Duhó'. Kaempferia galanga Linn.

The whole of this small herb, which is sometimes cultivated by the most acculturated Negritos, is rubbed on the back of the neck, or merely smelled, for colds. According to Merrill,

this plant is of prehistoric introduction, and is called *dusó* in Tagalog, *disól* in Iloko, and *dosó* in Bontok.

Ánghili. Bryophyllum pinnatum (Lam.) Kurz.

A medicine for body scabies is made from this plant. The leaves and stems are heated over the fire, and the juice is manually squeezed from the plant onto the infected areas. According to Merrill, this plant is called *angélica* in Spanish and is apparently the origin of this local plant name.

Tángan-tángan. Ricinus communis Linn.

An oil is obtained by crushing the fruit of this pantropic bush, the "castor-oil" plant, and the oil is ingested with water for constipation. This is a common usage throughout the Philippines. In addition, the leaves are rubbed with salt and plastered to the side of the body when there are sharp pains, and it is difficult to breathe. This condition is called *tagilílan* by the Pinatubo Negritos. *Tángan-tángan* is also the local name for this plant in Tagalog and in other dialects.

Laíya. Zingiber officinale Rosc.

The roots of the ginger are pounded to obtain a powder which is rubbed on the abdominal area for a stomach-ache. A few of the acculturated Negrito families cultivate this plant for its medicinal value, but it is usually obtained in trade from the lowland Sambal. The Pinatubo pygmies also call this plant *alomángi'*, or *naapák*. Cognates for the local name *laíya* appear in many Philippine dialects, such as, *layá* and *luyá*.

NATIVE PLANTS USEFUL FOR PURPOSES OTHER THAN FOOD

Despite intense cultural contacts bringing fundamental changes in their way-of-life, the Pinatubo pygmies still utilize hundreds of wild plants in everyday life activities. Even in instances in which recently acquired tools and ideas have eliminated the functional importance of particular plants, the Negritos have retained this traditional knowledge.

All plants appearing in the following discussions, unless specifically noted as being exotic, are native plants, that is, indigenous or endemic plants, and for the most part are low and medium altitudes plants having widespread distribution. It is fortunate that most of the plants utilized by the Pinatubo Negritos are of widespread distribution, for the possibilities of obtaining comparative ethnobotanical data for the same plants from other pygmy groups are enhanced.

PLANTS USED IN MAKING BARK CLOTH

During the many months that I lived with the Pinatubo pygmies, I did not see a single individual making or wearing bark cloth. Nevertheless, it has been used in the past, and the older men and women still know which trees provide the best bast, as well as the specific method of preparing and coloring the beaten bark. Even when Reed traveled through the territory of the Zambales Negritos, manufactured cloth obtained from the lowlands was being worn by most of the pygmy groups, but he does state: ". . . where the wilder Negritos live the breechcloth and *saya* are made of the inner bark of certain trees." [76]

According to informants, the bark was peeled from the protected side of the tree, and the rough, outer bark stripped off to obtain the tough inner bast. This bast was then beaten with the back edge of a thick work bolo, or with a wooden bark-cloth beater, the *pamitpit,* against a smooth round stone. The pounding was continued until the desired malleability and thickness was obtained. Finally, the beaten bark was washed in the river and spread in the sun to dry.[77] I could not find

[76] Reed, W. A. Negritos of Zambales. Manila (1904) 37.

[77] Bark cloth is still being made and worn rather extensively by the Negroid Dumagat in northeast Polillo Island, and as I witnessed it being manufactured a number of times, a discussion of the process is included herein for comparative purposes. Among the Dumagat, the activity of making bark cloth is divided roughly into two phases: (1) work done at the site of the tree, and (2) completion of the work at the dwelling. The entire activity is accomplished by women.

(1) The specific tree selected for the cloth—one of at least eight species of *Ficus,* and one species of *Dysoxylum*—may first be tested by removing a small piece of the whole bark, stripping off the outer bark, and chewing the inner bark. The cross-grain of the fibers is then evaluated. If the bark is deemed satisfactory, a thin strip about one inch wide, and about a yard in length, is removed vertically down one side of the trunk. Deep cuts which completely encircle the bole of the tree are made at the ends of this vertical strip. A bolo is then inserted, at intervals, where the vertical strip has been removed, and the whole bark pried loose from the trunk. If the bole of the tree is small, or the bark desired high above the ground, the tree may be chopped down. When the whole bark has been pried from the bole of the tree, it is then necessary to remove the outer bark in order to obtain the tough inner bast. One end of the length of the bark removed is folded so that the stiff outer bark cracks along the fold. The bolo is inserted in this crack, and the outer bark peeled down a few inches until there is room to grasp the bast. With a steady pull, the bast is stripped from the outer bark, and after being carefully scraped, trimmed, and rolled, is brought to the dwelling.

a specific term for "bark cloth." It was referred to as *lamít* which is the general term for "clothing."

The barkcloth beater, according to informants, was simply a short length of round hardwood whittled at one end to form a handle. The older people state that the beaters had no longitudinal or right-angled grooves on the working surface which characterizes all other beaters which I have seen being used by other Philippine pagans, as well as the stone beaters found in Professor Beyer's archæological collections.[78]

For a short period during the past war, the use of beaten bark for clothing was revived, for the pygmies were unable to trade bananas, tobacco, and forest products into the lowlands for manufactured cloth.

All but one of the plants—enumerated below—which were used by the Pinatubo pygmies for making cloth belong to the genus *Ficus*. The inner barks of the wild figs are very tough, as well as easy to obtain, and are the common medium for bark cloth among all Philippine Non-Christian groups with whom I have worked. The other plant belongs to the genus *Artocarpus* which, according to Evans, is the genus extensively utilized for cloth by the pygmy groups in the Malay Peninsula.[79]

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(2) At the dwelling, the fresh bark is immediately placed in the sun, and allowed to dry for approximately one hour. Then, using a smooth, round stone for an anvil, and the wooden bark cloth beater, called the *sagság*, the bast is beaten. The beater has one set of coarse, right-angled grooves. In the process of pounding, the bast is folded continually so that all parts are actually beaten many times, and so that the thickness of the folds prevent the bast from being injured or torn by the blows. Finally, the thoroughly beaten bast is carried to the river, and rinsed, over and over, until all of the juice in the bast produced by the pounding is removed.

The cloth is colored by dipping it in different shades of mud or clay. The most attractive specimen that I saw in Polillo (now in the collection of the Philippine National Museum) was stained a deep brown with mud, and has white, geometric designs obtained by utilizing the juice of the fruit of the introduced citrus, *dáyap, Citrus aurantifolia* (Christn.) Swingle. The lighter colored basts are often decorated with betel nut spittle. No colored designs are added to the wrap-around skirts of the women, but the edges are attractively frilled.

[78] *Cf.*, Beyer H. Otley. Philippine and East Asian archaeology, and its relation to the origin of the Pacific Islands population. (1948), figs. 20–*a*, 20–*b*, and 21 for illustrations of stone bark cloth beaters found in the Philippines.

[79] Evans, Ivor H. N. The Negritos of Malaya. Cambridge (1937) 71–72.

Balíti. *Ficus nuda* Miq.

(strangling fig) *Balíti* or *baléte* are common names in Philippine dialects for wild figs, usually, the strangling figs.

Kalánat. *Artocarpus blancoi* (Elm.) Merr.

(tree) Local names: *Kalánat* (Bot.-Sbl.); *pakák* (Sawang Negritos, San Marcelino Municipality, Zambales).

Kayáhan. *Ficus variegata* Blm.

(tree) Local name: *payáhan* (Sbl.), according to Merrill.

Gatíl. *Ficus pubinervis* Blm.

(tree) No cognates found.

Pupútut or *tadúk-gahálaw.* *Ficus* sp.

(tree) Local names: According to Merrill, *pupútut* is *Ficus balete* Merr., in Sambal; *tadúk-gahálaw* means the "hornbill's post."

The dried sheath from the stalk of the wild bananas, *Musa errans* (Blco.) Teodoro, in its natural state was also used for clothing, particularly, for the loin-cloths of the men. According to my informants, this dried sheath was excellent for the loin-cloths inasmuch as long strips could be obtained. As we shall see in the following discussion of Contemporary dress, specific styles of the men's loin-cloths are extremely long.

The bark and banana-sheath cloth were colored in a number of ways. The lighter colored basts were stained a reddish or bluish shade by using dyes obtained from specific plants.[80] These are enumerated below. In addition, dark colors were obtained by burying the cloth in mud for a whole day and night, or by using soot. The soot for coloring the cloth was collected in rather an interesting manner, an activity called *pungápung*. A bamboo tube was held close to a smudge-fire and the soot collected on the inside of the tube. The bamboo tube was then split open, the soot scraped off the inner walls, and rubbed on the cloth.

[80] Being coastal dwellers, the Polillo Dumagat employ two different plants obtained from the mangrove swamps for dying bark cloth. A yellowish color is obtained from the tree *bangkódu'*, *Morinda citrifolia* Linn., by scraping the roots, adding powdered lime, water, and heating the concoction with the cloth in a covered receptacle. A reddish color can be obtained from the pounded bark of the tree *tabígi'*, *Xylocarpus granatum* Koen. The bark is pounded and allowed to soak in water. The bark cloth is then either dipped in the water several times, or allowed to set.

The following three plants were specifically used for dying the bark and banana-sheath cloth:

Agóho. Casuarina equisetifolia Linn.

The bark of this conifer-like tree was pounded and then placed in a container of water. The cloth to be colored was soaked in this water for at least two days and, according to the informants, became reddish.

Hakít. Terminalia sp.

The bark was scraped from the trunk of this tree, and merely rubbed on the cloth giving it a bluish color. If the cloth was then placed in the mud, it became very black.

Tambálaw. Myristica philippensis Lam.

The scraped bark of this tree was rubbed on the light colored bast giving it a reddish tinge. According to Merrill, this plant is called *tambalau* or *tambau* in Tagalog.

According to the oldest Negrito informants, no designs were added to the cloth, and even today solid colors are preferred. I have not seen printed materials being used for the loin-cloths of the men, and only rarely for the wrap-around skirts of the women.

Contemporary dress.—As noted, the Pinatubo Negritos now utilize manufactured cloth obtained from the Chinese stores in the lowlands for the loin cloths of the men, and the wrap-around skirts and blouses of the women. In general reference, the loin cloths are called *lubáy*,[81] and dark blue or black are the favorite colors for everyday wear. The cloth is first passed between the legs, and then to the right or left around the body, depending upon whether an individual is right or left handed, and hooked under and over at the back. Invariably, a long "tail" is left at the rear (see Plate 5, fig. 1). The cloth going around the front of the body passes over the length going between the legs.

A number of styles of loin cloths is worn by the Negritos according to their age and status, the availability of cloth, and on specific ceremonial occasions.

The *talupína* is a short, apron-like G-string supported by a waist band, the *agkúh*. The latter is usually made of trimmed rattan (see Plate 5, fig. 3). The cloth merely runs between the legs, and under and over the belt at the front and rear.

[81] *Lubáy* (Bot.-Sbl.), *lubáy* (D.-Neg.), *abáy* (Aburlin Pagans).

This type of G-string is normally worn only by the boys, when they first begin to dress, but on occasions by everyone, men and women, when there is a scarcity of cloth. I suspect that this was the basic style for everyday wear, when bark cloth was being extensively utilized by the Pinatubo pygmies, for it is also the type utilized by the Polillo Dumagat, as well as other primitive, pagan groups, who still wear bark cloth. Moreover, my Negrito informants stated that the *talupína* was a common style in the past, as it was easier to make when using bark as the medium for cloth.

The *biniknál* is an extremely long—sometimes three yards—blue or light colored loin-cloth. After running between the legs and forming the pubic covering, as described above, the cloth is wrapped many times around the waist.[82] Normally the entire abdomen is covered, and frequently the wrappings will reach the nipples. This style of loin cloth is worn by the young men, the dandies, when they are courting, or by older men who possess powerful personal spirits. It is distinctly a dress attire.

The *hinidúl* is a shorter loin cloth, but made entirely of red cloth, and worn only on ceremonial occasions. If a pygmy is traveling to certain areas inhabited by powerful spirits, such as the higher slopes of Mt. Pinatubo, in order to attract personal tutelaries and offer his body as the host, he will wear a bright red loin cloth, as well as a red sash, the *bandá'*. This indicates to the spirits that he is wise and brave, and would be a desirable host. During the curing-séances in which evil spirits are taken from the body of the patient, the mediums may wear this type of loin cloth.

Kondíman, "red cloth," is commonly utilized in rituals today and, as we have noted, is an important gift to the spirits. However, in 1903 when Reed was among the Zambal Negritos, he could not dispose of a bolt of red cloth.[83] It is hard to believe, because of its important uses today, that employment of red as a ceremonial color has invaded the Pinatubo culture in the past forty-six years. Moreover, my old informants state that the styles of loin cloths described above existed during Spanish times, and that red cloth was important then for the *hinidúl,* as well as for other ceremonial purposes.

[82] *Cf.,* Schebesta's Menschen Ohne Geschichte. Verlag St. Gabriel, Modling (1947) 57, fig. 14. The Zambal Negrito in the right front of the picture is wearing the *biniknál* type of loin cloth.

[83] Reed, W. A. Negritos of Zambales. Manila (1904) 37.

Like that of the men, the present costuming of the women is made entirely of manufactured cloth, and in addition, is identical with styles of dress found among the provincial Sambal women. Basic is the wrap-around skirt, the *ináwak* (*lamít*, Bot.-Sbl.), and among the younger women, a slip-over jacket, the *kimónah* (!), which covers the breasts but leaves the midriff bare (see Plate 5, fig. 4). A longer wrap-around, called the *bahülúng*, which reaches and wraps over the breasts is also common. The older women wear only the wrap-around skirt paying little attention to the newer standards of modesty.

Informants stated that in the past G-strings, specifically the *talupína*, were also worn by the women and even at present, according to the Negritos, by the women of one pygmy group near Sawang, Zambales, an area which I did not reach. As we have noted above, future ethnological studies may very likely define the G-string, that is, a short length or cloth or bark cloth running between the legs and supported by a belt of rattan or some other material, as the older form of dress, and the loin cloth, that is, a longer piece of material which goes between the legs and then is wrapped one or many times around the waist, as a more recent attire.

PLANTS UTILIZED IN THE BOW AND ARROW COMPLEX

The survival of the bow and arrow among the Pinatubo Negritos, and its persistent use even today, markedly distinguishes the way-of-life of the pygmies from the surrounding lowlanders. The bow and arrow are used in nearly every life activity; hunting, fishing, trapping, dancing, games, ceremonies fighting, and is still a highly meaningful trait to the Pinatubo pygmies.

The presence of the bow and arrow among all Philippine Negritos reported, and its absence among many other Non-Christian groups, has excited much discussion. Some students argue that the Negritos were solely responsible for the appearance in the Philippines of this complex. However, from brief comparative studies that I have made with the collections of the Philippine National Museum, and from personal field observations, it would appear that more than one distinct bow and arrow complex has filtered into the Archipelago. This thesis will be discussed in a future paper, when more comparative data are on hand. At present, a detailed study of the

plants used by the Pinatubo pygmies in the bow and arrow complex, a description of all items in this complex, as well as the ways in which they are made, will help greatly to clarify ethnological problems concerning the bow and arrow. For these reasons, I attempted, while in the field, to collect and prepare for identification, every plant related to the bow and arrow complex in order to set forth this ethnobotanical data from one sizable Negrito group for future comparative studies.

The role of the bow and arrow has not remained unchallenged, for in recent years many guns have been utilized by the pygmies, particularly in hunting wild pigs and deer. Most of these are homemade shotguns, the *paltík,* made either locally by the more skilled Negrito smiths, or obtained from the forges of the Kapampangan near Patling, Tarlac (see Plate 5, fig. 2). In 1945 during the liberation of Zambales, the pygmies obtained hundreds of rifles from Japanese soldiers who were killed while attempting to hide on the forested slopes of Mt. Pinatubo. However, these Japanese rifles will soon be useless, for already most of the ammunition has been consumed and it cannot be replaced.

The *paltík* are highly treasured, and now are commonly demanded for bride price in place of the traditionally used bows, arrows, bolos, cloth, and other items. One of my closest Negrito friends gave ten (!) of these homemade shotguns to his parents-in-law as the bride-price, although this same friend hunts only with bow and arrow. I have a number of younger Negrito friends who have never killed a pig or deer with the bow and arrow, but who use guns exclusively. Still, when these same men are telling how they killed a pig or deer, they do not pantomine the raising of the gun to their shoulder, but the action of drawing the bow!

The use of guns has had considerable influence upon older Negrito activities, such as hunting. Formerly, hunting was a communal enterprise in which whole villages participated as either hunters or drivers. Now, a hunter may go out alone with one or two dogs. Individualism, conflicting with older group activities, has arisen. Nevertheless, the bow and arrow will continue to survive in ritual activities, though much of its practical value has been lost.

The bows.—The bows of the Pinatubo pygmies are simple in construction with no decorations, are very long (5½ to 6 feet), and draw between twenty and thirty pounds. They

are called *bay'*.[84] All adult bows are made from the outer hard wood palms, the *büyáng*, but the bows of the children are made of exotic bamboos. All items of the bow and arrow complex are made by the men or boys. Normally, the bow and arrow are utilized only by the men and boys, and as a matter of fact, I have never seen a woman shoot a bow. Nevertheless, informants state that a few women are excellent hunters with the bow and arrow.

When a Negrito has located a suitable palm, he cuts off the top to let the green wood dry. After a few days he returns, fells the palm, and with this work bolo roughs out five to ten blanks. The outer portion of the palm wood becomes the belly of the bow. Then, the crude bows may be either buried in mud to give them a deep black color, or if one is needed immediately, placed in the sun to complete the drying process. The bows placed in the mud are left there for at least two weeks, before they are also dried in the sun.

The completion of the blank at the dwelling is a complicated process involving a number of steps, and considerable work. First the blank is scraped with a bolo into the desired thickness, shape, and length (see Plate 6, fig. 2), and then the entire surface is rubbed with an abrasive stone, usually *kapúlan*, a "travertime," to complete the form. The bow is then sandpapered with the dried leaves of specific plants (see Leaves used for sandpaper). Afterwards, the bow is rubbed with bamboo to give it a smooth surface and polish, and sometimes with the pounded bark of the tree *tambálaw*, *Myristica philippensis* Lam., to color the surface. The bow is completed by carving the nocks for the string, and by rubbing it with beeswax to give the surface a sheen.

The following plants are used for men's and children's bows:

Anáw. Livistona spp.

According to the Pinatubo pygmies, the outer hardwood of this palm makes the very finest bows. The bows made of this medium frequently have a slightly concave belly (see Plate 8, fig. 7). The Negroid Dumagat of Polillo Island, and the Ipagi-Egongot of northern Quezon Province also consider

[84] Cognates for the Pinatubo Negrito's term for the "bow" are found in other Philippine dialects: *bi'* (Pol.-Dum.), *báyi* (Hanunoo-Mangyan), *bái'* (D.-Neg.), and the Tagalog word for the outer hard wood of palms, *báhi*.

this palm the best material for bows. Father Vanoverbergh notes that the Abulug Negritos make bows from *Livistona rotundifolia* Mart.[85]

The local name of this palm is possibly a contraction of the term *anaháw* which appears throughout the Philippines for species of *Livistona*. However, the Polillo Dumagat call this palm *anó:*, the Egongot call it *anáw*, and it is also possible that these forms are the original terms with names, such as *anaháw*, being the result of an accretion of syllables.

Báy'an. Memecylon sp.

The hardwood from the bole of this tree is made into bows on rare occasions, particularly when palm woods are not available. It is apparent that this plant name has been derived from the Negrito's term for "bow," *bay'*. Merrill notes that *Memecylon lanceolatum* Blco., is called *bayan* in Sambal. No other cognates were found.

Bánga'. Orania palindan (Blco.) Merr.

Good bows can also be made from the outer hardwood of this palm, but it is not frequently used. *Orania palindan* is called *bánga'* in Panay Bisaya, Tagalog, Polillo-Dumagat, and in other Philippine dialects. *Bangá'*, having a different stress, is the Sambal and Tagalog term for a pottery water jar.

Kalaíhan. Aglaia sp.

The hardwood from the trunk of this tree is carved into bows. I have not seen a single bow made of the three trees, *báy'an, kalaíhan,* and *palikayúwün,* but only of the outer hardwood of palms and bamboo. Nevertheless, the pygmies state that the wood of these trees is used on rare occasions. No cognates were found for *kalaíhan.*

Kawáyan-mantüg. Bambusa spinosa Blm.

All children's bows are made out of strips of this large, thick-walled bamboo, and on very rare occasions, young men will use bows made from this medium. According to Merrill, this bamboo is of prehistoric introduction which probably accounts, in part, for its limited use for bows by the pygmies. In addiion, it is very inferior to the outer hard wood of palms as a medium for bows.

[85] Vanoverbergh, Morice. Negritos of Northern Luzon. Anthropos (1925) 414.

Idúk. Arenga pinnata (Wurmb.) Merr.

The outer hard wood of this palm is also a good material for bows, although its use is limited. *Arenga pinnata* is called *irók* in Botolan-Sambal, and according to Merrill, *igok* in Cebu Bisaya, and *hidiok* in the Bikol regions.

Palikayúwün. Linociera ramiflora (Roxb.) Wall.

According to the Pinatubo pygmies, bows are sometimes made out of this hard-wood tree, although as noted above, I have not seen a single specimen. No cognates were found for this plant name. The word-base appears to be *káyu,* the Sambal term for "tree."

Takípan. Caryota cumingii Lodd.

The outer hard wood of this palm, according to the opinions of the pygmies, yields the second best bows. This plant name is commonly encountered in the surrounding dialects for the "palma brava." The Pinatubo Negritos also call this palm *ágüih* believing that it is a different plant. The variations in the shapes of the branches probably account for this erroneous distinction.

The arrow shafts.—The Pinatubo pygmies distinguish more than fifty (!) types of arrows and have either specific or descriptive terms for them. The generic term for arrows is *yaw,*[86] and the varieties are determined primarily by the differences in the points. In this discussion, however, we shall enumerate and describe four types of arrows based upon their use, and by the types of shafts: (1) a short, light, "flight" arrow which is used for hunting pigs and deer, in fighting, or in games, (2) an extremely long arrow, usually about six

[86] The terms *yaw* and *yáo* are employed by all of the Negritos of the Zambales Range for "arrows" in general. Among the Pinatubo pygmies, the word is specific, and is not the plant name of a reed used for arrow shafts. However, this term has probably been derived in the past from a plant name. Garvan, in an unpublished lexical list found in Beyer's Manuscript Collection, notes that the Negritos of Inga and Baao, Camarines Sur, call arrows, *bigao.* Merrill notes that *bigao* is Bikol for *Miscanthus sinensis* Anders., and that the same plant is called *bilau* by the Ifugao and Igorot who do not functionally employ the bow and arrow. *Miscanthus japonicus* (Thunb.) Anders., also a good cane for arrow shafts, is called *buyau* in Ifugao, and *viau* in Ivatan. A reed used by the Ipagi-Egongot for arrow shafts, *Phragmites vulgaris* (Lam.) Trin., is called by them *biyáw,* and by the Tagalog in the Baler area, *biláw.*

feet, which is used in hunting birds and shooting fish, (3) an arrow with a shaft made from the outer hard wood of palms which is purely ceremonial in function, and (4) a heavy, stout arrow made of a large reed, or wood, which has a detachable point, or a large metal blade. This latter type of arrow is used only for hunting the wild pigs and deer.

All arrow shafts are called *ulúngan*, and are frequently decorated with beautiful, incised geometric patterns, the *bátik* (see Plate 8, figs. 8–18). In contrast to other Philippine groups still utilizing the bow and arrow, particularly in areas south of Luzon, the arrows of the Pinatubo Negritos are always fletched with three large feathers. The feathers for fletching are called *puwál*.[87] In addition, many of the shorter, flight arrows have a protective covering between the nock and the feathers, the *kopüt*, made from the casing of the cocoon (see Plate 8, fig. 2). I have not seen this employed other than by the Negritos of the Zambales Range. Variations of the "primitive release" (see Plate 8, fig. 4) are used in drawing the bows, and they are strung by pushing with the foot against the center of the bow.[88]

The reeds and small bamboos used for the arrow shafts are merely trimmed, dried in the sun, and straightened by heating and with hand pressure. The palm wood and ordinary wood shafts are rounded perfectly by scraping the shaft with a bolo, and by using dried leaves for a sandpaper. The proper length of each type of arrow is obtained by individual measurements (see Plate 8, fig. 1).

Anáw. Livistona spp.

The most beautiful and valuable arrows encountered among the Pinatubo pygmies are made from the outer hard wood of this palm, or sometimes from *takípan, Caryota cumingii*. De-

[87] *Pulád* (Tag.); *pulál* (D.- Neg.); *pulád* (Pol.-Dum.); *alád* (Casiguran-Dum.); *alág* (Egn.). The tail and/or wing weathers of the following birds are commonly used for fletching by the Pinatubo pygmies: the hornbills, *talíktik* (*Penelopides p. manillae*) and *gahálaw* (*Buceros h. hydroxorax*), the *tikwí* (*Butastur indicus*), the *láwin* (*Haliastur indicus intermedium*), the *bulílak* (*Spilornis cheela holospilus*), and a few others.

[88] Morice Vanoverbergh writes: "At *Gíba*—I saw *Basí*—stringing one of his bows. In order to do this, he successively attached the cord to one of the ends of the bow, stuck this end into the ground, bent the bow by pushing with the foot against its center, and finally attached the loose end of the string to the free end of the bow." Negritos of Northern Luzon Again. Anthropos (1930) 66–67.

spite the crude tools, the arrows are perfectly rounded with machine-like precision. This type of arrow, called *yulyúl,* is purely ceremonial in functions, that is, it is not employed for hunting, but as gifts to spirits, for bride price, or as hereditary gifts to young male children.

Bíkaw-mantŭg. Schizostachyum fenixii Gamble
Pŭ́hiw. Schizostachyum lumampao (Blco.) Merr.
Bayóg-mantŭg. Dendrocalamus merrillianus (Elm.) Elm?
Baytó, bináhak, duwánan, gunÍhI', yábIl. Schizostachyum spp.

The short flight arrows are made of the above eight small bamboos which all belong, with the exception of one, to the same genus. Unfortunately, some of my bamboo specimens were sterile, and it was not possible to obtain the species of each plant.

The plant names *baytó, bíkaw,* and *pŭ́hiw* are related to plant names for small bamboos in other Philippine dialects. No cognates were found in Merrill for *bináhak, duwáman, ganÍhI',* and *yábIl.*

Móa. Miscanthus sinensis Anders.[89]
Uyóng. Miscanthus floribundulus (Labill.) Warb.
Táib. Saccharum spontaneum Linn. subsp. *indicum* Hack.

Most of the long bird and fish arrows are made of the tall cane, *móa,* but as *uyóng* and *táib* are very common grasses in the Pinatubo area and easier to secure, these latter two reeds are sometimes used for the shafts. No cognates were found in Merrill for *móa,* but *táib* appears in Tagalog and in other Luzon dialects as *talahíb.*

It is interesting to note that the specific word for "arrow" in a number of Philippine dialects has apparently been derived from mutations of plant names for species of *Miscanthus.* Harold Conklin recorded the words *ugyóng* among the Hanunoo-Mangyan and Buid-Mangyan (Non-Christian groups in Min-

[89] Father Vanoverbergh notes that *Miscanthus sinensis* Anders., is the common medium for arrow shafts among the Abulug Negrito. (*Cf.,* Vanoverbergh, Morice. Negritos of Northern Luzon, p. 414). In New Guinea, *Miscanthus japonicus* Anders., and wild sugar cane, are the common canes for arrow shafts. [*Cf.,* Blackwood, Beatrice. Use of plants among the Kukukuku of southeast Central New Guinea. Proceedings of the Sixth Pacific Science Congress 4 (1940) 118–126]. Among the Polillo Dumagat on the northeast coast of the Island, the only cane which is used for arrow shafts is also *Miscanthus japonicus* which they call *ayIyóng* (*tub-ás,* Polillo-Tagalog, and *bigó',* Casiguran-Tagalog).

doro) for "arrow," and *udyóng* among the Ratagnón Mangyan; also meaning specifically, "arrow." Fr. Diego Bergano's *Vocabulario de la lengua Pampanga,* gives *uyung* as the Pampangan term for arrow.[90] As we have noted, *uyóng* among the Pinatubo Negritos, as well as among other Negrito groups in the Zambales Range, and *ayIyóng* among the Polillo Tagalog and Dumagat groups, are all vernacular plant names for species of *Miscanthus.*

The bow strings.—The Pinatubo pygmies make strong and durable bow strings out of the bast of a number of vines, the hanging roots of the strangling figs, and from the inner bark obtained from the boles of specific trees. The following description of the Pinatubo Negritos making a bow string, at the village of Kawáyan, Zambales, is taken from my 1947 field notes:

> The Negritos cut off a seven foot length of the whole hanging root of the tree, which was about the size of my thumb, and then split the root lengthwise into two equal halves. The hard core of the root was then removed by violently twisting each half, and the outer bark was carefully striped off exposing the tough, white bast. We returned to the village, and there the man carefully trimmed and scraped the two long strips of bast into the desired width and thickness. Then two men, standing at each end of the seven foot lengths, pulled and while pulling, twisted together the two strips of bast. Finally, rattan was tied to each end of the new string, and it was stretched and tied between two trees (see Plate 6, fig. 1).

On other occasions, I have seen the Negritos twist the string in the manner described above, and then suspend the string from the limb of a tree with a heavy stone secured at the bottom end to keep the string taut. The rock was also secured so that it would not rotate and unravel the newly made string.

The strings for the children's bows are made out of trimmed rattan (this, or trimmed bamboo, is the medium most commonly employed by the Non-Christian groups in Mindanao), but rattan is never used for the men's bows. All bow strings, as well as the strings of musical instruments, are called *düh.*[91] The

[90] Bergano, Fr. Diego. Vocabulario de la lengua Pampanga. (Imprenta de Ramirez y Girauder, Manila) 1860.

[91] In Botolan-Sambal bow strings and the strings of musical instruments are called *duüh,* and *düs* by the Negrito on the southeastern slopes of the Zambales Range in the vicinity of Floridablanca, Pampanga. Garvan, in an unpublished lexical list in Beyer's manuscript collection, notes that the Negritos of Mt. Samat, Bataan, call the bow strings *lö-lö,* but among the Negritos in the Dinalupihan area Bataan, I also recorded the term *düh.* Related terms for the bow string are found in other dialects: *dügüt* (Egn.), *dIlós* (Pol-Dum.), and dilís (Tag.).

bow string is made about a foot and one-half longer than the bow, and wrapped loosely around one end. Should the string break while hunting, it can be quickly spliced (*hublóng*, Pint.-Sbl., but *huldóng*, Bot.-Sbl.).

The leaves of one vine, *lúngon-düh*, *Rourea volubilis* (Blco.) Merr., are rubbed on the completed string to make it durable, and the bast of *úlip*, *Cypholophus moluccanus* (Blm.) Miq., may be wrapped around the ends of the bow string where it is looped around the nocks to prevent excessive wear from friction. The bow string knot (see Plate 8, fig. 5) is identical among all pygmy groups in the Zambales Range with whom I have worked. The bow strings made by the Pintubo pygmies are, by any standards, excellent, and are greatly superior to strings made of trimmed rattan, or bamboo, which are encountered in the southern Philippines.

The inner bark for the bow strings is obtained from one of the following plants:

Anópo. *Conocephalus* sp.

(vine) Local names: *hanópol* (Tag.); *anapul* (Ig.); *anopal* (Bilaan); also *anópol* (Pol.-Dum.) and *hanópol* (Pol.-Tag.) for *Pokiliospermum suaveolens* Blm.

Balíti. *Ficus nuda* Miq.

Bubúlon. *Ficus caulocarpa* (Miq.) Miq.

(tree) Local name: *bubúlon* (Bot.-Sbl.)

Kalánat. *Artocarpus blancoi* (Elm.) Merr.

Kalyámat. *Ficus bakeri* Elm.

Kamalíngaw. *Ficus subulata* Blm.

(small tree) no cognates found in Merrill.

Malapáo'. *Ficus payapa* Blco.

(large strangling fig) This plant name means "like (*mala*) the *páo'* (*Mangifera altissima*),"

Pagdüh-bay'. *Hypserpa cuspidata* (Wall.) Miers.

(vine) When translated, this local descriptive plant name means "used for the string of the bow."

Panamhiyín. *Ficus* sp.

(tree) No cognates were found for this plant name.

Pupútut or *tadúk-gahálaw*. *Ficus* sp.

Plants yielding bast used for securing the feathers and projectile points to the shafts.—If well made, and showing pride in the workmanship, all flight arrows have two wrap-

pings, an inner and outer, provided to securely fasten the arrowpoints and feathers to the shaft (see Plate 6, fig. 3). The *bülbül* [92] is an "inner wrapping" made of tough, sinew-like basts obtained from a number of specific vines and trees. The bast employed for this purpose is scraped until it is very thin and narrow, and while still wet, wrapped around the arrow. The following plants are used specifically for the inner wrapping:

Balíti. Ficus nuda Miq.

Bubúlon. Ficus caulocarpa (Miq.) Miq.

Kuliyát. Gnetum indicum (Lour.) Merr.

Dalúnot. Pipturus arborescens (Link.) C. B. Rob.
(tree) Local name: *dalúnot* (Tag.)

Úlip. Cypholophus moluccanus (Blm.) Miq.
(bush) No cognates found, but the plant name is possibly derived from its use as cordage, and for wrapping; for example, *lílip* in Tagalog is "hem," and in Pampanga *ulíp* is "mend."

The "outer wrapping," or *apün*, is made of the carefully trimmed bast of only one vine, or of one rattan. The *apün* is wrapped directly over the *bülbül*, and has two functions: (1) to protect the inner wrapping which actually holds the feathers and points in place, and (2) to make the entire wrapping more attractive. The relationship between the two wrappings of the arrow shaft are shown in Plate 8, fig. 3. The two plants used for the outer wrapping are:

Malaúban or *malikóban. Calamus* sp.
(rattan) Local names: *malaúban* in Tagalog for *Calamus siphonospathus* Mart., and *oban-oban* (Bag.) for the same species.

Undáyon pag-óng. Tinospora reticulata Miers.
(liana) When translated into English, this local plant name means the "hammock (*undáyon*) of the turtle (*pag-óng*)," and describes facetiously the manner in which this large vine hangs.

Plants utilized in making points for the bird arrows.—For hunting birds, the Pinatubo pygmies employ a very long arrow which has a trident-like point made of wood or bamboo. These "tridents" have three to five individual points with many small

[92] *bIdbId* (Pol.-Dum.); *buntál* (Egn.), but the vine from which the best is obtained is called *bidibId; bülbül*, Bataan and Pampangan Negrito; *bulbúl*, "pubic hair," Tagalog.

barbs (see Plate 7, fig. 6). Arrows with long shafts are used when the anticipated trajectory is upward, such as in shooting birds, for the Negritos argue that the longer shaft gives greater accuracy in an upward flight.

In the past, these same arrows were also used to shoot fish, but today the Negritos use a trident with two or three barbed metal points. In general arrows having trident-like heads are called *balangát* (the term also describes the arrowpoint), but if the tridents are made of metal, they are commonly called *halapáng*.[93]

The following plants yield readily workable and durable mediums from which the pygmies carve the points of the *balangát*:

Báy'an. Memecylon sp.
Banatóh. Mallotus philippensis (Lam.) Muell.-Arg.
Kalaíhan. Aglaia sp.
Kawáyan-mantúg. Bambusa spinosa Blm. (introduced plant)
Duwánan. Schyzostachyum sp.
Púhiw. Schizostachyum lumampao (Blco.) Merr.
Palikayúwün. Linociera ramiflora (Roxb.) Wall.

Plants utilized in making arrows with detachable points.— The most remarkable arrow used by the Pinatubo Negritos is the *hübát* [94] which has, as we have noted, a detachable point (see Plate 7, fig. 5). When this arrow strikes a pig or deer, the barbed metal point is stuck in the flesh, and the shaft detaches. The sturdy shaft is held to the point by a strong cord approximately one meter in length. As the shaft drags behind the fleeing animal, it is caught in the undergrowth, and either traps the animal, or inhibits its flight, so that it can be dispatched by the hunter with another shot.

The shafts of these arrows are usually made of *báy'an, Memecylon* sp., or of *púhiw, Shizostachyum lumampao* (Blco.) Merr. Between the shaft of the arrow and the arrowpoint (see Plate 7, fig. 5–a), there is a short length of hard wood, called the *lobúngan,* which either detaches with the arrowpoint, or detaches separately from the arrowpoint and the shaft. Only

[93] Harpoons for fish, often having trident-like heads, are called *salapáng* in Tagalog, *sarapáng* in Tagbanuwa and Polillo-Dumagat, *sapáng* in Leyte-Bisaya, and similar mutants in other dialects.

[94] *Sibát* is a generic term for "spear" in a number of Philippine dialects.

the following plants are used to make this foreshaft (see the discussion below of the Traditional uses of plants):

Apyóh. Callicarpa formosana Rolfe.
(bush) Local name: *anoyop* (Ilk., Ibn.)

Búwa-úngot. Ixora philippinensis Merr.
(bush) This is a local descriptive plant name, but the meaning is not clear. *Búwa'* means "prolapsus uteri," and *úngot* is the Sambal term for the common coconut.

Káyum-bákil. Canthiun diococcum (Gaertn.) Merr.
Enonymus cochinchinensis Pierre.
(small trees) This descriptive plant name means the "tree (*káyu*) of the mountains (*bákil*)."

Páan-labúyo.[95] *Pavetta indica* Linn.
Psychotria zambalensis Merr. & Quis.
(small trees) Local name: see footnote No. 95.

Páan-labúyo-bágbag. Ixora macrophylla Bartl.
(tall shrub) Local name: see footnote No. 95.

Six small, strong, parallel cords secure the projectile point of the *hübát* to the shaft, and when the latter is entangled in the undergrowth, holds the pig or deer (see Plate 7, fig. 5–b). This cord is always made of the inner bark of one of the following three plants:

Kuliyát. Gnetum indicum (Lour.) Merr.
Dalúnot. Pipturus arborescens (Link.) C. B. Rob.
Úlip. Cypholophus moluccanus (Blm.) Miq.

Another type of arrow, which may or may not have a detachable point, is also encountered among the Pinatubo pygmies, the *hawíl* (*tambát* or *sawíl* among the Bataan Negritos). The shaft of this arrow, like the bird arrows, is very long, and also made of *móa, Miscanthus sinensis* Anders. The barbed metal point detaches in the manner and with the function described for the *hübát*, but there is no foreshaft, and the tail-like base of the arrowpoint fits directly into the shaft. The *hawíl* is used to shoot monkeys, monitor lizards, large birds, and fish.

[95] The Pinatubo pygmies call at least six small trees *páan-labúyo*, and all belong to the family Rubiaceae. It is obvious that this descriptive plant name has been borrowed by the pygmies, for although *labúyo* means "wild chicken" in surrounding dialects, it has no meaning to the Negritos. They call the wild chicken, *manók-dikót*, that is, the "grass chicken." In Tagalog, this plant name would mean the "wild chicken's foot." A *bágbag* is a "large forest tract with sizable tree."

Toy bows and arrows.—Young male children play, or hunt birds, frogs, lizards, field mice, and other small animals, with toy bows made of bamboo, usually the introduced *kawáyan-mantiíg, Bambusa spinosa* Blm., and arrows made of either the same medium, split and trimmed, or of the stems of the following two grasses.

Talangáw. Rottboellia ophiuroides Benth.
(grass) Local names: *talango* (Tag.)

TalítIk. Andropogon tortilis (Presl) Merr.
(grass) This is a common name throughout the Archipelago for the "Tarictic Hornbill" (*Penelopides p. manillae*).

These toy arrows are not normally fletched but have only a nock for the bow string, and the end of the shaft is sharpened for the point. Sometimes precocious youngsters will fashion arrowpoints of bamboo which are identical to the metal points used by their fathers, add feathers to the shaft, and have a miniature replica of adult types of arrows. All toy arrows are called either *laháy-laháy* or *yaw-yáw'*, and the toy bows, *bay'-báy'*. It is play activities such as this one, which copy adult behavior, that train the children for the responsibilities of their culture. Formal teaching is rare, for example, the father does not systematically show his son how to make a bow and arrow, but rather the child learns by observation, and by copying activities (see Plate 6, fig. 4).

Traditional uses of plants.—The plants utilized in the bow and arrow complex, as well as in other activities, are greatly influenced by tradition. For example, there are many hard wood trees which could be used for the foreshaft (*cf.*, p. 272 the discussion of the *lobúngan*), and the pygmies are aware of this fact, but due to traditional influences they select only those plants enumerated. Consequently, the plants which have been described herein are nearly all, if not all, of the plants which are normally utilized by the pygmies in making the bows and arrows. When more thorough ethnobotanical data is available, it will be interesting to see if these same plants are also traditionally utilized by other ethnic groups who still possess the bow and arrow. If persistent and geographically contiguous similarities and/or differences do exist, it might define, as I suspect, distinct bow and arrow trait-complexes.

Stone arrowpoints ?.—As we shall see in a following section of this monograph, the Pinatubo pygmies possess the double bellows, vertical, bamboo forge and have apparently been work-

ing metals for a considerable period of time. With the exception of the bird arrows which are still made with points of bamboo or hard wood, all of their arrows now have metal points made by the Negrito smiths. In contrast, other items in the bow and arrow complex are made wholly from native Philippine plants, and could be of great antiquity. Therefore, what were the mediums used in making arrowpoints prior to the time that the Pinatubo Negritos could obtain drift-metals, and had the forge with which the metals could be worked?

We have one early observation by Dr. John Frances Gemelli Careci, made during his trip around the world from 1693 to 1697, which specifically notes the use of stone arrowpoints by the Zambales Negritos. This observation, which significantly is the only historic reference yet produced noting the use of stone for arrowpoints in the Philippines, is as follows:

> Their weapons are Bows and Arrows, a short Spear, and a short Weapon, or Knife at their Girdle. They Poison their Arrows, which are sometimes headed with Iron, *or a sharp Stone,* and they bore the Point, that it may break in their Enemies Body, and so be unfit to be shot back. (*Italics mine*).[96]

Typologically, Professor H. Otley Beyer has defined some very crude stone flakes in his collections as arrowpoints.[97] These arrowpoints (?) are extremely crude, for none show any signs of controlled pressure flaking, and as a matter of fact,

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[96] Reed, W. A. Negritos of Zambales (1904) 29. The Negritos of the Zambales Range do not normally use arrow poisons and are not aware of the plants—such as, *Solenospermum toxicum* Loher., and *Strophanthus* spp., used by the Polillo-Dumagat—which can be used for this purpose. I have never seen a Negrito poison an arrow although it is a widespread opinion among the surrounding lowland people that all of their arrows are poisoned tipped. Informants do state that on very rare occasions poisoned arrows were used against enemies. The point, according to informants, was removed from the arrow and pushed into the body of the scorpion fish *napó'* (*Gymnapistes niger* Cuv. and Val.) which has poisonous spines. The fish and point were then wrapped with banana leaves and placed in a fire until the fish had burned into ashes. The point was then reinserted in the shaft of the arrow and was believed to be poisonous. Frank Dorn states: "The arrows are not ordinarily poisoned. If a Negrito should decide to kill a man, or, as in the past, a party should decide to attack or raid another group, the "war" arrows would always be poisoned by having both the point and part of the shaft impregnated with the decayed meat of an animal." Dorn, F. Hungry Negritos in their watchful forests. Asia 31 (1931) 727.

[97] *Cf.*, Beyer, H. O. Outline review of Philippine archaeology by islands and provinces. Philip. Jour. Sci. 77 (1947) 205, *plate 10*, for illustrations of Neolithic arrowpoint (?)

I have seen no stone tools in Beyer's collection which evidence the developed pressure flaking characteristics of points from Indonesia illustrated by Heine-Geldern.[98] On the contrary, the large polished stone points illustrated by Beyer[99] are certainly spearheads, and were made by a Neolithic people who had thoroughly developed the art of cutting, boring, and polishing hard stones. I have also examined smaller polished implements in Beyer's collections which are very probably arrowpoints, and which are identical in form to specific types of metal points utilized by the Pinatubo pygmies. Certainly, sharp stone flakes, boar's teeth, etc., were used in making the bows, arrows, and other works of bamboo and wood prior to the introduction of metal to the pygmies and other ethnic groups! Countless scrapers of all sizes and varieties are represented in Beyer's collections.

Nevertheless, I do not believe that stone arrowpoints, whether chipped or polished, were extensively utilized by the Zambales pygmies, or by any other Philippine group. Among the Pinatubo Negritos, there is no traditional knowledge concerning the use of stone for projectile points, and this is true of all of the pygmy groups in the Zambales Range with whom I have worked. Despite the tremendous surface surveys carried on by Beyer, *et al.*, in the Philippines, there have been no sites found indicating that they were extensive workshops and hunting camps, and yielding numerous arrowpoints, which would be expected, if the early hunting and fishing groups employed the bow and arrow and used stone arrowpoints extensively. I have spent hundreds of hours in the Pinatubo area, and elsewhere in the Zambales Range, looking for stone projectile points in hopes of illuminating this problem, but I did not find, or obtain information of, a single specimen.

If we are to judge by the specimens defined and illustrated by Professor Beyer as arrowpoints, they would have been greatly inferior technologically to the two mediums still commonly employed for arrowpoints by Philippine Non-Christian groups who do not use metal extensively for this purpose. These two mediums are: (1) the outer hard wood of palms, and (2)

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[98] Heine-Geldern, Robert. Prehistoric research in the Netherlands Indies. New York, Southeast Asia Institute (1945) *figs. 29, 33* and *35*.

[99] *Cf.*, Beyer, H. O. Philippine and East Asian archaeology, and its relation to the origin of the Pacific Islands population. Nat. Res. Council of the Philippines. Bull. No. 29 (1948) 1–130, *figs. 22–a, 22–b*, and *23*.

bamboos. The evidence that I could gather in the field indicates that the palm woods and bamboos were also the materials used for projectile points by the Pinatubo Negritos prior to their present almost exclusive use of metals. The pygmies still make, though very seldom, points of bamboo which are exactly the same in shape as metal points. It is possible that older forms made with bamboo and wood have been transferred to the new medium. These bamboo points have the same generic name as the metal points, or the names are modified in one manner or another to denote that one point is made of bamboo, and another, similar in form, of metal. As noted, the *hawíl* is a long, metal tipped arrow, which may or may not have a detachable point. The *hawíl-hawíl* is identical in form and function, but the point is made of a carved strip of thick walled bamboo. If the point of the *dumpíl* (see Plate 7, fig. 2) is made of bamboo, it is called *dudumpíl*. Many other examples could be cited.

Perhaps, some stone arrowpoints have been employed by the Pinatubo pygmies and by other pygmy groups; however, I believe, and the evidence indicates it, that the common mediums for this purpose, prior to the widespread use of metals, were bamboos and the outer hard wood of palms.

PLANTS USED AS FISH POISONS

Prior to the very recent introduction of a technique of shooting fish, shrimp, and eels from under the water using water goggles and a short metal arrow propelled by a rubber band (this technique is described in the next section of this monograph), plants were extensively utilized to stupify and poison the numerous fish, shrimp, and eels found in the Pinatubo rivers.[100]

[100] The following fish and eels were identified by Albert W. C. T. Herre, School of Fisheries, University of Washington, from collections I made in the Pinatubo rivers; *andólan, Sicyopterus crassus* Herre, the fry of this same species, from the smallest to the largest, are called *tábiylh, čIčIlíw, and dImüdtáh* (no cognates found for these fish names); *banóta'*, a rare snake eel, *Achirophichthus kampeni* Weber and de Beaufort, also called *küyükóy* (no cognates found); *buók, papaít*, or *babantál*, an eleotrid, *Belobranchus belobrancha* Cuv. and Val. (local, descriptive fish names); *bunúka*, a heavy bodied eleotrid, *Bunaka pinguis* Herre (Dr. Herre notes in personal correspondence that *bunak* is the Negrito (?) name for this fish at Casiguran, Quezon Province); *bagháng*, a glassfish, *Ambassis nalua* Hamilton-Buchanan (*bagsáng*, Ilk.); *hanglíway*, a mountain bass, *Kuhlia marginata* Cuv. and Val; *langgát*, a mountain bass, *Kuhlia rupestris* Seale and Bean; *pigúk*, a grunt, *Therapon cancellatus*

The practice of catching fish by means of plant poisons is widespread in the Philippines, and all of the following plants used by the Pinatubo pygmies, with the exception perhaps of the leaves of the sweet potato and the fruits of palms, are commonly employed by many other Philippine people. *Túba,* a widespread term in the Philippines for "fish poison," as well as for the names of specific plants used for fish poisons,[101] is also the term used by the Pinatubo pygmies.

Ágüh. Caryota cumingii Lodd.

The fruit of this palm, which is also called *kamandíih* when it is bearing large fruit clusters, is ground to obtain a very strong fish poison. The fruit contains many stinging crystals (raphides). According to the Negritos, this poison kills the fish and eels, but not the shrimp, and is effective even in flowing water.

Apyóh. Callicarpa formosana Rolfe

The Pinatubo pygmies pound the leaves of this shrub until a small basketful is obtained. Then, the basket, with the pounded leaves inside, is placed in the river or stream and agitated to distribute the poison. This poison is said to kill the shrimp, as well as the large fish and eels.[102] As noted in Quisumbing's paper on Philippine plants used for arrow and fish poisons, the leaves of *Callicarpa formosana* contain saponin.[103] No related plant names were found for this shrub.

Bünát. Derris elliptica (Roxb.) Benth.

This vine, abundant in the Philippines at low and medium altitudes, is used throughout the Archipelago and Malaysia as

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Cuv. and Val. (*pigok,* Bis.); *talípi',* goby-like, *Pyhacichthys aspro* Kuhl and van Hasselt (no cognate found); *tawnáhan-mantűg,* moorish eel, *Anguilla mauritiana;* and *tatanîm,* a goby, *Chonophorus melanocephalus* Herre. *Cf.,* Herre, W. C. T. A new labrid and other Philippine fish records. Philip. Jour. Sci. 78 (1949) 149–153.

[101] *Croton tiglium* Linn., is called *túba* in Ilk., Bik., Tag., S. L. Bis. Sul., and in Pol.-Dum.

[102] Among the Pinatubo Negritos, the generic term for all shrimp is *uláng.* In addition, they recognize a number of specific types; *hapaán,* the largest; *uókul,* also large but dark in color; *guloyán,* large and light colored; and smaller varieties, *mamaláy, kolodóng, dídimán, koyótut,* and *manampál-ampó'.*

[103] Quisumbing, E. Philippine plants used for arrow and fish poisons. Philip. Jour. Sci. 77 (1947) 172.

a fish poison, and in Polillo Island it is cultivated by the Tagalog and Dumagat who call it *tublí'*. The Negritos pound the roots until about one kilo is obtained. The pounded roots are then placed in a basket which is put into the water and agitated. According to the Negritos, this is the very best poison, and will kill even the largest fish and eels. The plant is also called *bünát* in Botolan-Sambal, but no other cognates were found.

Karáfl. Albizzia procera (Roxb.) Benth.

The bark of this tree is pounded, or scraped, and then employed like *bünát* (described above). The Negritos state that this *túba* will kill all of the small fish, but will only stun the larger fish, and does not affect the shrimp. The bark contains saponin.[104] According to Merrill, this plant is called *káral* in Ibanag and Pangasinan, and *kálai* in Tinggian.

Idúk. Arenga pinnata (Wurmb.) Merr.

The fruit of this palm is also pounded to obtain a powerful fish poison, for the fruit contains many stinging crystals. According to the Negritos, it is dangerous to use this poison in rivers from which the domesticated water buffalo drink. The pygmies state that the poison will kill the carabao even two days after it has been placed in the streams, and by unwritten agreement it is rarely used today.

Labtáng. Anamirta cocculus (Linn.) W. and A.

The seeds of this vine are heated and then ground to obtain a powder. A large quantity of this poison is merely dumped into the river, and it stupifies even the largest fish. Among the lowland Sambal, the powder is mixed with chopped bait (this type of poisoned bait is called *bayatíng*), and thrown into schools of fish. Fish eating the bait come to the surface swimming madly in every direction until caught by dip nets.

According to Quisumbing, the poison principle is *picrotoxin*, and that ". . . poisoning due to eating the fish obtained by this means has often occurred."[105] The Negritos believe and state that none of the plant poisons are injurious to man.

Local names: *labtáng* (Ilk., Ig.); *lágtang* (Bis., Mbo., and Sul.)

Pótat. Barringtonia racemosa (Linn.) Blm.

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[104] Quisumbing, *ibid.*, p. 148.

[105] *Ibid.*, p. 145. Also see Quisumbing's "Vegetable poisons of the Philippines. Philip. Jour. Sci. 77 (1947) 127–171.

The bark of this tree, reported to contain tannin, is scraped or pounded to obtain a powder which is used like *bünát* (described above), and according to the Negritos, is very effective for the fish but will not kill the shrimp.[106]

Local names: *pótat* (Tag.); *pútat* (Tag., Bik., S. L. Bis., P. Bis., Sul., Mag.)

In addition to these native plant poisons, we have also seen that two New World plants introduced by the Spanish are used today by the Pinatubo pygmies for stupifying shrimp, fish, and eels: (1) the leaves of the common sweet potato, *Ipomoea batatas,* which are said to be very effective for shrimp, and (2) the powdered bark of *kamástili, Pithecolobium dulce,* for fish and eels.

PLANTS USED IN THE MANGANTÚKO COMPLEX

In about the year 1925 (as agreed upon by all of my Christian and Negrito informants), a fishing technique was introduced to the Pinatubo Negritos, as well as to the lowland Sambal, which has completely revolutionized their fishing activities. This is the method of shooting fish, eels, shrimp from under water using water goggles called *antúko* or *bíkol,* and a short, metal arrow usually made from an umbrella rib, the *asído* (Sp.) which is propelled by a rubber band made from the innertubes of automobile tires.[107]

The Negrito men, very infrequently the women, dive under the water, and either shoot the grunt and mountain bass as they swim by, or impale the numerous gobies found clinging to the rocks (see Plate 3, fig. 1). The technique is also very effective for the eels and shrimp which are found under the rock ledges and water grasses along the edges of the rivers. If the water is clear, any Negrito man or boy can get a sizable catch in a very short time. The efficiency of this technique has almost eliminated all other methods of fishing, and would do so completely if it were not for the fact that the rivers are muddy during the rainy season. In addition, the efficiency of this technique is beginning to have a marked effect upon the supply of fish, eels, and shrimp.

Woods used for the water goggles.—Though the *mangantúko* complex was introduced to the Pinatubo pygmies only twenty-

[106] *Ibid.*, p. 166.

[107] All of my informants stated that the *mangantúko* technique was introduced into Zambales by men from the Bikol Provinces; hence, the name of the goggles, *bikol.* The term *antúko* is very probably derived from *anteojos* (Sp.) meaning glasses or goggles.

five years ago, the form of the goggles, and the plants used in making the goggles, are now traditionally established. The water goggles are usually carved out of a solid, moderately hard piece of wood by each individual fisherman, so that, the goggles will exactly fit his eye sockets. As among other Philippine ethnic groups, the goggles are sometimes carved from the horn of the water buffalo, but it is difficult for the Negrito to obtain this medium. I have seen a few goggles made from the thin walled, tubular bamboos. Any type of clear glass which the Negrito can obtain is used for the "windows" of the goggles, and a rubber band holds the goggles tightly to the head.

The following woods, and one bamboo, are specifically used in making these diving goggles:

Anaótung or *laníti*. *Wrightia laníti* (Blco.) Merr.

Ballíwüt. *Ehretia polyantha* R. Br.

Bangábah. *Macaranga grandifolia* (Blco.) Merr.

Bangkál. *Nauclea orientalis* Linn.

(tree) Local name: *bangkál* (Tag., Bot.-Sbl.)

Binúnga'. *Macaranga tanarius* (Linn.) Muell.-Arg.

(tree) Local name: *binúnga* (Tag., Kuy., P. Bis., Sbl.)

Bo:'-mantűg. *Gigantochloa levis* (Blco.) Merr.

(bamboo) Very probably of prehistoric introduction; *bóho* (Tag.); *búlo* (Pol.-Dum.)

Kalibutbút-ya-tagálbag. *Voacanga globosa* (Blco.) Merr.

Liúhin-laním. *Homonoia riparia* Lour.

Ngúho'-dagí. *Ligustrum pubinerve* Blm.

Óah. *Harpullea arborea* (Blco.) Radlk.

Páan-labúyo. *Psychotria luçoniensis* (Cham. and Schlecht.) F.-Vill.

(small tree) *Cf.*, page 272 for a discussion of this plant name.

Palumboyín or malapucing Syzygium similis (Merr.) Merr.

Leaves and stems of plants used in cleaning the glass windows of the goggles.—Before diving to shoot the fish, eels, and shrimp, the pygmies very carefully clean the glass windows of their goggles with the leaves of one of the following plants. All of these plants are abundant along the streams and rivers. Three of the plants (marked with an asterisk) have no other function, and are conceptually important to the pygmies only because of this use. It is significant to note that these same three plants do not have specific names, but are named in terms of their apparent relationships with other useful plants. This is to be expected, for I am quite certain that these plants were ignored, and had no local name, prior to the introduction

of the *mangantúko* complex. Then, when by experimentation these plants were found to be useful, that is, were "meaningfully defined," they were given descriptively modified names which had already been established for other useful plants.

Liúhin-laním. *Homonia riparia* Lour.

#*Malakawáyan-laním.* *Polygonum barbatum* Linn.

(ground vine) The local Negrito name means "like the bamboo (*kawáyan*)," and *laním*, "water," denotes that this plant is found along the rivers.

#*Püdá'-kaúgan.* *Vigna* sp.

(vine) According to the Negrito, this is the type of *püda'* found along the "large rivers," the *kaúgan*. In the pygmies' botanical system, the "true" type of *püdá'* is *Pueraria phaseoloides* (Rox.) Benth.

#*Sínko-sínko-laním.* *Jussiaea suffruticosa* Miq.

(shrub) This plant is believed to be related to *sínko-sínko*, *Polanisia icosandra* (Linn.) W. and A., and is differentiated by the use of the term for "water" designating the former's habitat.

Táib. *Saccharum spontaneum* Linn. subsp, *indicum* Hack.

(grass) The young stem of this abundant grass, which is full of juice, is broken, and then rubbed against the glass. This procedure very effectively cleans the windows.

It is also interesting to note how the Pinatubo Negritos have defined the habitat of the above plants by incorporating into the local plant names the terms *laním* and *kaúgan*. This technique is commonly utilized by the pygmies in the formation of autochthonous plant names.

Fish-stringers made from trimmed stems or twisted leaves of plants.—Before diving, the Negrito fishermen secure a *halóloy*, "fish-stringer," around their waist on which they can string the fish, eels, and shrimp which they have shot without having to leave the water. A number of plants found along the banks of the streams, or in the forests nearby, yield tough whole stems, or leaves which can be twisted, for making this cord. Stringers are also made from carefully split and trimmed rattan.

Ingwál. *Flagellaria indica* Linn.

(vine) Local names: *ingual* (Ilk.); *ingula* (Tag.) *inual* (Pamp.)

Püdá'-kaúgan. *Vigna* sp.

Pamikíwün-naputí'. *Canavalia luzonica* Piper

(vine) In the Negrito's classification of plants, this is the *naputi'*, "white," type of *pamikíwün*. The "true" type

pamikíwün-mantűg, has been identified as *Mucuna nigricans* (Lour.) Steud.

Táib. (grass) *Saccharum spontaneum* Linn. subsp. *indicum* Hack. The long leaves of this wild sugar cane are merely twisted together to form a stringer.

OTHER FISHING TECHNIQUES

As we have noted, the method of diving, and shooting fish, shrimps, and ells with a metal rod propelled by a rubber band, has almost eliminated all other techniques of fishing. However, during the rainy season (July through September) and the typhoon season (October and November), the rivers are periodically muddy, and it is difficult to see the fish, shrimps, and eels from under the water. Primarily because of this, other and older fishing techniques have survived. In addition, the older men and women rarely utilize the new fishing technique, but prefer one or another of the following methods: (1) plant poisons (discussed above), (2) fish traps, particularly the floodtrap (discussed in the following section), (3) the bow and arrow, the latter with specific types of trident points, (4) hand-poles and lines, the *patódan,* as well as short, set-poles and lines, and *pabáti',* which are baited and placed at night along the banks of the rivers,[108] (5) diverting and drying streams, or the edges of the larger rivers, by one or a series of dams, the *baláh,* and (6) gathering small fish, shrimps, and eels found hiding under and around the rocks and grasses along the edges of the rivers by hand. The latter technique is specifically the activity of small boys, girls, and the women. They sometimes use a short, pointed rod made of bamboo or metal, called the *hudí'* or *lalátog,* for impaling the river life, after its position had been discovered with the free hand.[109]

The Pinatubo Negritos are quick and efficient dam builders, in even the strongest current, and as this is an important

[108] All of their fishhooks are made of metal and are usually obtained from lowland Chinese stores, but are sometimes made by the Negrito smiths from heavy wire or umbrella ribs.

[109] One other fishing technique should also be mentioned, which though not commonly employed by the Pinatubo pygmies, is characteristic among the Sambal in the Poonbato area. The Philippine night heron (*Nycticorax n. nycticorax*), called *bakáw* by the Sambal and the Negritos is used as a "fisher." The bird is caught while still young, tamed through association (these birds are literally a part of the family), and taken daily to the river to feed. When the bird has fed for itself and is satiated, it will still continue to catch fish, shrimps, crabs, frogs, and small eels. As no neck ring is used, these must be removed quickly from the bill by the keeper who follows the bird as it hunts the river life.

older method of fishing, it is discussed in detail herein. I early learned the efficiency of the Negritos in building dams through an unfortunate incident. During a typhoon in November, 1947 when I was attempting to drive out of the mountains, my automobile was caught in the center of a river which was about 40 feet across, and was being destroyed. Within a few hours, a number of my Negrito friends had built a dam across the swift river, which diverted the river into another channel, causing the water to drop from a depth which at one time must have reached four feet, to a level of less than one foot.

With sharp bolos, their method of building dams is rather simple, as well as speedy, in that plants found along the rivers or handy in the forests nearby provide for the entire construction. First, three or four tripods are placed at even intervals across the river. These are usually built of the small trunks of the *agóho, Casuarina equisetifolia,* which as we have noted, is very common in the streams and river bottoms of the Pinatubo area at low and medium altitudes. The tripods are tied with the whole stems of handy vines (*cf.*, p. 285, the discussion of vines used to tie the flood-trap), or with split rattan which can be quickly prepared. Longer trunks of the *agóho* are then placed horizontally against the up-stream side of the tripods. Large rocks are piled around the bases of the tripods, and along the base of the lowest horizontal brace, to give the frame strength. The whole frame is constructed so as to slope with the river and does not receive the full force of the current as it would if placed at right angles. Then, beginning at the upstream end of the frame, the pygmies place many small branches upright against the frame. These are held in place by the force of the current. Against these upright branches, the Negritos next place a horizontal matting of reeds and tall grasses, and over this a final layer of large banana leaves. The water, which has been partly entering the new channel, and partly flowing over and through the dam, is almost wholly diverted with the addition of the banana leaves.

When the dam is complete, and the depth of the water below the dam markedly lowered, the men, women, and children (usually a whole village or a large family) feverishly catch the fish, shrimps, and eels by hand. Fish that have escaped into deep holes, which may still exist, are shot with the bow

and arrow, or by using the *mangantúko* technique. If repaired from time to time, these dams will last three or four months; however, their usefulness is over in a few days when all of the river food below the dam has been caught.

Frequently, the Negritos will merely dam the edges of the larger rivers, or portions of these rivers in which there are a number of channels. This is done by building a series of low rock walls, and using wild banana leaves as the facing. As we have noted, dams are called generally *baláh,* but when a number are placed consecutively, each has a specific name; the first, *paliklík,* the second, *manaphón,* and those following, *pakatían.* A number of these small dams will dry entirely a part of the river, and it is easy for the women and children to catch by hand the small gobies and shrimp.

The use of dams to divert and dry rivers is a widespread food getting activity among Philippine people, and I doubt whether the practice as found among the Pinatubo pygmies involves any unique elements.

PLANTS USED IN THE CONSTRUCTION OF THE FLOOD-TRAP

The *anság,* a flood-trap, is the only fish trap commonly used at present by the deeper Negritos, and it appears to be a very old technique among all of the Pinatubo pygmy groups. A barrier or dam is thrown across the river (in the manner described in the preceding section) which has an opening in the center through which the water pours onto a sloping platform. The floor and low side-walls of the platform are made of split bamboo, and are spaced so that the water will pass

FIG. 1. The *anság,* a flood trap.

through, but which are still narrow enough to catch all but the very smallest fish which are swept onto the platform. The platform is about four meters long, and the sides about 60 cm high, and it slopes gradually up so that the downstream end of the platform is above the highest water level (see figure 1). During the rainy and typhoon seasons when the rivers flood, this is a very effective trap. Invariably, the builders will secure a bow beneath the platform of the trap to bring good luck.

The fact that this trap is used when the rivers flood demands that it be well built. For tying all parts of the trap, only the vine *kíniw-nangítit, Ichnocarpus volubilis* (Lour.) Merr., is used, and for the tripods, and the braces of the trap, the limbs and trunks of the following trees:[110]

Agóho. Casuarina equisetifolia Linn.
(conifer-like tree) This plant name appears in many Philippine dialects.

Ana'án. Duabanga moluccana Blm.
(tree) Local name: *ana'án* (Bot.-Sbl.); no other cognates were found.

Awíli'. Ficus hauili Blco.

Banabáh. Lagerstroemia speciosa (Linn.) Pers.
(tree) Local name: *banabá* (Tag.), and in many other dialects.

Ditá'. Alstonia scholaris (Linn.) R. Br.
(tree) Local names: *ditá* (Tag., Bis.); *dirita* (Ilk.)

The flooring and walling of the flood-traps are made out of the following bamboos:

Bíkaw-mantüg. Schizostachyum fenixii Gamble
Local names: *bikal* (Ilk., Ibn., Pamp., Pang., Tag.) for *Schizostachyum diffusum* (Blco.) Merr. The Pinatubo pygmies call *S. diffusum, bíkaw-báboy*, the "pig's *bíkaw.*"

Kawáyan-kílíng. Bambusa vulgaris Schard. (prehistoric introduction.)

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[110] The Pinatubo Negritos gather, trade, or sell the *kíniw-nangítit* and the fern-vine *dulimán, Stenochlaena palustris* (Burm.) Bedd., to the lowland Sambal. As among the Tagalog, these two vines are used by the Sambal for tying all parts of the large fish corrals, the *tabagán* (the common *baklád* in the Tagalog regions). These vines are strong, and do not deteriorate quickly in either salt or fresh water.

Kawáyan mantŭg. Bambusa spinosa Blm. (prehistoric introduction)

Pŭhiw. Schizostachyum lumampao (Blco.) Merr.

Local name: *úsiw* (Pol.-Tag., and Pol.-Dum.) for Dinochloa *scandens* (Blm.) O. Ktze.

OTHER TYPES OF FISH TRAPS

With the exception of the *anság*, fish traps are not commonly found among the Pinatubo pygmies. However, I have seen or obtained information of a few other varieties of fish, shrimp, and eel traps used by the Negritos. The *áhag* is similar in construction and function to the *anság*, but in place of the platform, a large bottle-shaped basket, the *taún*, is used to trap the fish. Weirs, the *búboh*, for smaller fish and shrimps are fairly common, and among the Bataan Negritos and the Negritos of southern Zambales are extensively utilized. These tubular baskets have a large, cone-shaped mouth with sharpened bamboo spikes pointing, and constricting, inwards. These flexible spikes allow the shrimp and small fish to enter, but prevent a return passage. The *híid* (*síid* in Tagalog) is a small, portable fish corral set up in quiet water and baited with large numbers of termite larva. This latter trap though commonly used by the lowland Sambal and Tagalog, is only rarely seen among the Pinatubo Negritos.

All of the fish traps utilized by the Pinatubo Negritos are found among other Philippine peoples and they embody no unique elements.

TREES WITH FRUITS EATEN BY BIRDS, AND SPECIFICALLY SITES FOR A "BIRD BLIND," THE ÁBONG [111]

A common and striking technique employed by the Pinatubo pygmies in hunting birds is to build a small tree house, a "bird blind," in a tree having ripe fruit which is attracting large numbers of birds.[112] This *ábong* is just large enough to cover the hunter and is made, with the exception of the floor, of plam leaves (*cf.*, list of palms on pp. 263–265). The platform, called specifically the *báag*, is constructed of any handy branches. The Negrito hunter hides in the blind with a sizable

[111] *Abúng*, "house," (Egn.); *afúng*, "house," (Bon.); *abúng*, "hut," (Ilk.).

[112] The following doves and pigeons are commonly shot from the bird blinds; the *buwábo* and *awóko* (*Ducula* spp.), the *puyáwan* (*Treron* spp.), the *kukúlok* or *kulók-kulók* (*Phapitreron* sp.), the *bató-bató* or *koloróng* (*Geopelia s. striata*). In addition, the male and female Tarictic Hornbill

supply of bird arrows and shoots the various birds as they alight to feed. Live bird decoys in cages, as well as voice-calls, are sometimes used as additional means of attracting the birds.

Two specific types of ladders are used in reaching the blinds. The *patakhán* consists of one upright, usually a thick walled bamboo or a long straight limb, lashed at intervals, with handy vines, to the bole of the tree. The lashings form the rungs. From the upper end of the *patakhán* the Negritos reach the tree house by either climbing along the branches or by employing another type of ladder, the *hampád*. This latter type of climbing device is invariably made of a small, but strong, whole bamboo, the *lilít, Dinochloa luconiae* (Munro.) Merr. with a short piece of wood tied at one end, at a sharp angle, so as to form a hook. The hunter merely hooks the *hampád* on a higher limb in the same tree, or even in a nearby tree, and then scampers up and across to the blind. I have seen Negritos, utilizing this same technique in obtaining bird eggs, begin at the base of one tree, and finally reach the bird nest in a third and much larger tree. It was impossible to climb the third tree directly, because it had no low hanging limbs, and the trunk was large and smooth.[113]

During specific months, the following trees are important sites for bird blinds, and it is interesting to note that three of the trees—*amúngIn, dayday,* and *panamhiyín*—are conceptually important to the Negritos primarily because of this ecological relationship of bird-tree-man:

AmúngIn. Pygeum vulgare (Koehne) Merr.
(tree) Local name: *amugan* (Tag.)

(*Penelopides p. manillae*) called *dayíw,* and *puláw* respectively, the parakeet (*Loriculus p. philipensis*) called *koahíhi,* the Guava Bulbul (*Pycnonotus* spp.) called *paloká',* the oriole (*Oriolus chinensis*) called *kulyáwan,* the Philippine bubul (*Microselis g. gularis*) called *tamhíh,* and hawks, such as the *láwin* (*Haliastur indicus intermedius*), are also shot from the blinds.

[113] Two other types of ladders utilized in obtaining young birds and eggs from steep banks and cliffs should also be mentioned. The *payidúng* is made from a slim trunk of a tree. The branches are chopped off, but short stubs left to form rungs. This type of ladder is merely leaned against the cliff. The *alawín* is a type of ladder which has been formed by the natural protrusion of large roots on the face of banks and cliffs. The generic term for all types of ladders is *adán* (*arán,* Bot.-Sbl., and *hagdán,* Tag.).

Anggagaf'. Gomphandra cumingii (Miers.) F.-Vill.

Balíti. Ficus nuda Miq.

Bubúlon. Ficus caulocarpa (Miq.) Miq.

Daydáy. Dysoxylum arborescens (Blm.) Miq.
Dysoxylum altissimum Merr.

Panamhiyín. Ficus sp.

Bird blinds are also built on the ground beneath the following trees which are too small to support a small tree house (the method of using this "ground-blind" is the same as the "tree-blind"):

ÁymIt. Ficus minahassae (Teysm. and De Vr.) Miq.

Bakálih. Celastrus paniculata Willd.
(small tree) No related terms found in Merrill.

Páan-labúyo. Pavetta barnesii Elm.
Psychotria luçoniensis (Cham. and Schlecht.) F.-Vill.

pangkól. Aralia bipinnata Blco.

Tagapháng. Gymnosporia spinosa (Blco.) Merr. and Rolfe.
(small tree) Local name: *tagapháng* (Bot.-Sbl.)

Bird blinds are also built on the ground when the fruits of the wild bananas are used for bait, particularly the fruit of the *amúkaw, Musa errans.* The pygmies gather a large number of the bananas and hang them in a cleared space near the blind. The various species of birds attempting to feed on the bait are shot with the bow and arrow.

The pakóykoy.—The most unusual technique employed by the Pinatubo pygmies in hunting birds from a blind is with the *pakóykoy,* a type of artificial bait manipulated by hand. The bait is made of either the red pith of the plant *tambák, Alipina haenkei* Presl or of a dead, banded, poisonous snake, the *ilíngan, Hemibungarous calligaster* Wiegmann.[114]

[114] Though the Negrito is not aware of the fact, the species of the snakes (*Hemibungarous* spp.) which they use for artificial bait are deadly poisonous. Despite the pygmies' tremendous knowledge of their environment, they frequently confuse poisonous with non-poisonous snakes. This is, in part, due to the fact that the Negritos are afraid of, and avoid, snakes, and are not aware of the specific function of fangs. Many forms of personal charms are carried as a protection against snakes. The python, called *biklát,* is an exception, for it is a highly prized food.

The hunter hides in a blind, which has been placed near a river or pond or on the edge of a clearing, and then with one hand he wiggles the artificial bait, or the dead snake, just outside of the blind. When a hawk dives to seize the bait (usually the *bulílak, Spilornis cheela holospilus,* commonly known as the "serpent eagle"), the hunter catches it with his free hand.

TREES WITH FRUITS AND FLOWERS EATEN BY BATS, AND SITES FOR HUNTING WITH THE "BAT-STICK"

Bats, particularly the large fruit bats popularly called the "flying foxes," are highly prized food.[115] During the months when these bats are plentiful, the middle of September until the middle of January, they are caught by means of the *pálloh.* This "bat-stick" is made of a bamboo pole, about four meters long, with the upper end covered with short lengths of spiny rattan sticking at about a 35 degree angle from the pole. The very spiny rattan, *láwin-naudít, Calamus* sp., is good for this purpose. The spiny rattan covers the end of the pole for approximately 70 cm.

A crude, tripod-like platform, called the *hákat,* is built high in a tree so that the hunter stands above the crown of the tree, and can freely fan the air with the bat-stick as the bats approach to feed. When the bat is struck, it is impaled on the spiny rattan. Frequently, the platforms are constructed in lanes between trees. Despite the fact that this activity is pursued at night, the *pálloh* is an effective tool, and large numbers of the fruit bats are obtained.

The following trees are feeding grounds for the bats, and some are conceptually important to the Negritos only because of this relationship:

Trees with fruits eaten by bats:

Kayáhan. Ficus variegata Blm.
Gatfl. Ficus pubinervis Blm.

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[115] The general term for the large, fruit feeding bats is *panílaw* (small types of bats *káging*). However, the Negrito specifically designate at least six bats which are caught with the *pálloh;* namely, the *pugót, manibá', ulándi, mamayápa* (from *payápa,* the name of a large, wild fig tree), *kapítpit,* and the *mangangkáng.* In addition to their value as food, the burned hair of the fruit bats is rubbed on the neck when the Negrito has a cold, or the jaws are worn as a necklace for the same purpose.

Malapáw. Ficus payapa Blco.
Tübóy. Ficus nota (Blco.) Merr.
tItIphán. Ficus barnesii Merr.

Trees with flowers sipped by bats:

Lapláp. Erythrina sp.
Natő'. Palaquium sp.
Pálak-pálak. Palaquium sp.

Bats are also hunted during nights, when there is moonlight, in the stands of the wild bananas. The undergrowth is cleared from around a few of the bananas bearing fruit so that the hunter, hiding nearby, can see the fruit. Bats attempting to feed on the fruit are shot using the bow and the "trident" types of arrows. This specific method of hunting bats is called *háwang.*

HUNTING BEES

The great delicacy of the Pinatubo pygmies is honey, *pulót;* moreover, the *tálo,* wax, is useful in many ways, and the young bees, the *úmok,* as well as the pollen found in the hives, the *latá',* are edible. The young bees are placed in a green banana leaf and roasted in the fire. The *latá'* is eaten raw.

Following the rainy season when the trees begin to bloom, the pygmies watch carefully for the swarms of the honey bees[116] (the generic term for "bees" is *panílan*), and systematically hunt for their hives. Even the flight of the Bee Buzzard, called the *mamanílan* (from *panílan*), is followed, and according to lowland informants who are amazed at the Negritos' ability to find hives, the pygmies can even locate the direction of the flight of the bees by "watching for their waste matter on stones."

When a young hive is located, its location is established by making a slash on the bole of the tree, and by inserting a stick pointing to the hive. This sign of first discovery and ownership, which is never violated by another Negrito, is called *büyá'.* The bees are driven away from the hives by employing a smoking torch, the *banúot,* which is made of green leaves with dried strips of bamboo in the center all tied on a stick. The activity of smoking the bees is known as *puáyIn* (from the word-base, *púay*). A bark cradle, called the *lúak,*

[116] The pygmies recognize five different "honey bees"; the *lókot* and *bayáong* which are found in holes in trees, the *panílan* and *abIlláw* which have true combs, and the *dáyog* which has a ground nest.

and made from the bark of *malakápa, Mallotus* sp., is used to retrieve the hive when it is high in a tree. The honey is carried in bamboo tubes.

The most interesting and amusing of the Negrito's dances, the *pinapanílan,* is a wild pantomine of the whole act of hunting and smoking bees. During the course of this tempestuous dance, the hunter watches for the signs of the swarms, follows and finds the hive, prepares the smoking torch, climbs the tree, is attacked by the bees during which they invariably get inside of his loin cloth, and finally retrieves the hive and delights in the taste of the honey. The entire activity is portrayed in perfect pantomine while the dancer follows a violent, "pandango," guitar tune.

PLANTS HAVING STICKY SAPS AND FRUITS, AND USED TO TRAP BIRDS AND ANIMALS

The great variety of hunting techniques employed by the Pinatubo Negrito in catching birds and small animals is strikingly pointed out by the use of the following two plants:

Anúling. Pisonia aculeata Linn.

The very sticky fruit of this woody vine is scattered in large numbers in the trails of the wild chickens, civets, and other birds, such as the quail. A bird or small animal passing along the trail, and touching the fruit, will become so covered with the sticky mass that it cannot fly or move. Even monkeys can become so covered with the sticky fruit that they cannot escape. Merrill notes that *Pisonia umbellifera* (Forst.) Seem., is *anúling* in Tinggian, Tagbanuwa, Tagalog, Bikol, and Panay Bisaya.

Kalánat. Artocarpus blancoi (Elm.) Merr.

The trunk of this tree yields a milky latex. This latex is placed in a pot and heated until it becomes a thick, gummy mass. This gummy material, which is specifically called *gaút* by the Pinatubo pygmies, is then smeared on a long bamboo pole. The pole is stuck in a bamboo tube which has been secured high in a tree bearing fruit, so that the pole extends above the crown of the tree, and offers a likely spot for the birds to alight.

This method is usually employed in catching the common parakeet called *koahíhi. Loriculus p. philippensis,* although other birds may also be trapped.[117] Near the gummed pole, which we have noted protrudes above the crown of the tree,

[117] *kolasísi* (Tag.); *koasísi* (Bot.-Sbl.)

the Negritos place a number of live parakeet decoys in cages. As a flock of parakeets approach, having been attracted by the fruit and the decoys, they land on the conveniently placed pole, and are stuck fast. The hunter hiding nearby climbs the tree and obtains the birds by merely removing the pole from the holder. Using this technique, it is not unusual for the pygmies to catch even thirty birds at one time. The parakeets are eaten, kept as pets, or traded and sold in the lowlands.

This technique of trapping birds is also employed by the provincial Tagalog, and other Philippine people. Merrill notes that *Artocarpus rubrovenia* Warb., is called *kalúlot* by the Tagalog. No other cognates were found.

PLANTS USED IN THE CONSTRUCTIONS OF OTHER BIRD AND ANIMAL TRAPS

The Pinatubo pygmies still utilize a sizable number of traps employing spring-poles, and slip-nooses,[118] to catch the wild chickens, civets, monitor lizards, and monkeys. In addition, spring-poles are utilized to drive an arrow, or blunt spear, in the "belatic" types of traps.

The trimmed branches of the following trees, which have a marked spring, are used specifically for the *bawó*, that is, the "spring-pole":

Balinawnáw. *Otophora fruticosa* (Roxb.) Blm.

Banatóh. *Mallotus philippensis* (Lam.) Muell.-Arg.

Biblíh. *Guioa koelreuteria* (Blco.) Merr.
(small tree) No cognates were found.

Hüláng. *Micromelum inodorum* (Blco.) Tanaka
(bush) No cognates were found.

Magdadangláh. *Allophylus* sp.
(small tree) This descriptive local name means "like the *dangláh* (*Vitex negundo*)."

Malapatíngün. *Tarenna incerta* Koord. and Val.
(small tree) This descriptive local name means "like the *páting* (*Leea manillensis*)."

The láwan.—This small trap, embodying a spring pole and slip-noose, is very extensively utilized by the Pinatubo pygmies (see figure 2). The basic element of the trap is a curved frame (*a*)[119] always made of the whole stem of the vine,

[118] The plants from which cordages are made for the slip-nooses, etc., are enumerated and discussed in the next section of this monograph.

[119] The letters (*a*), (*b*), (*c*), etc., refer to parts of the trap which are labeled on each text figure, and are employed to facilitate the

FIG. 2. The *láwan* trap.

pángititun, Parameria barbata (Blm.) K. Schum., or *Parameria laurigata* (A. Juss.) Mold. Four cords (*b*) made of the fern-vine, *níto'-mantüg, Lygodium circinnatum* (Burm.) Sw., or of split rattan, run from one edge of the frame, and are secured to the trigger-bar (*c*) near the opposite side.[120] The trigger (*d*), called *pIhíw,* wedged between the trigger-bar and the sides of the frame, is tensioned by the force of the spring pole. The slip-noose (*e*), attached to the trigger and the spring-pole, is spread over the frame, and bait placed in the center. The lightest pressure against the cords, or the trigger-bar, releases the trigger, and the slip-noose flies into the air, through the force of the spring-pole (*f*), closing around the legs or body of the game.

This trap is designed for wild chickens and monitor lizards, but it may catch civets, and even monkeys.[121] It is usually placed in the trails of the wild chickens, and small brush fences, the *atáat,* are placed on both sides to funnel the game into the trap.

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descriptions.

[120] The trigger-bar of the *láwan* trap has a specific name; *talambíko.*

[121] The single species of monkey (*Macaca irus*) found in the Pinatubo area is called by four generic names: *bakólaw, čóonggo, sanglád,* and *bakI'.* In addition, many terms are employed to describe the life cycle, etc., of the monkeys. A newly-born monkey is called *kío',* the young monkeys, *akyás* (*akyát,* "climb," in Tag.), monkeys in their prime, *manaligtüg,* an old male, *butákal,* an old female, *tumbáyi,* and their cries, *ükkáh.*

The patikding:—This trap is similar in function, and somewhat in construction, to the *lawán,* but employs a camouflaged platform (*a*) made of split bamboo instead of the curved vine frame (see figure 3). The trigger (*b*) is held in place

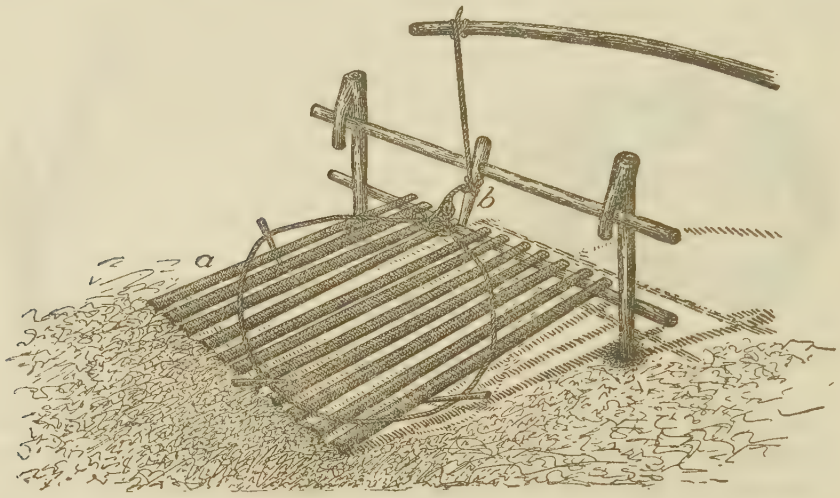
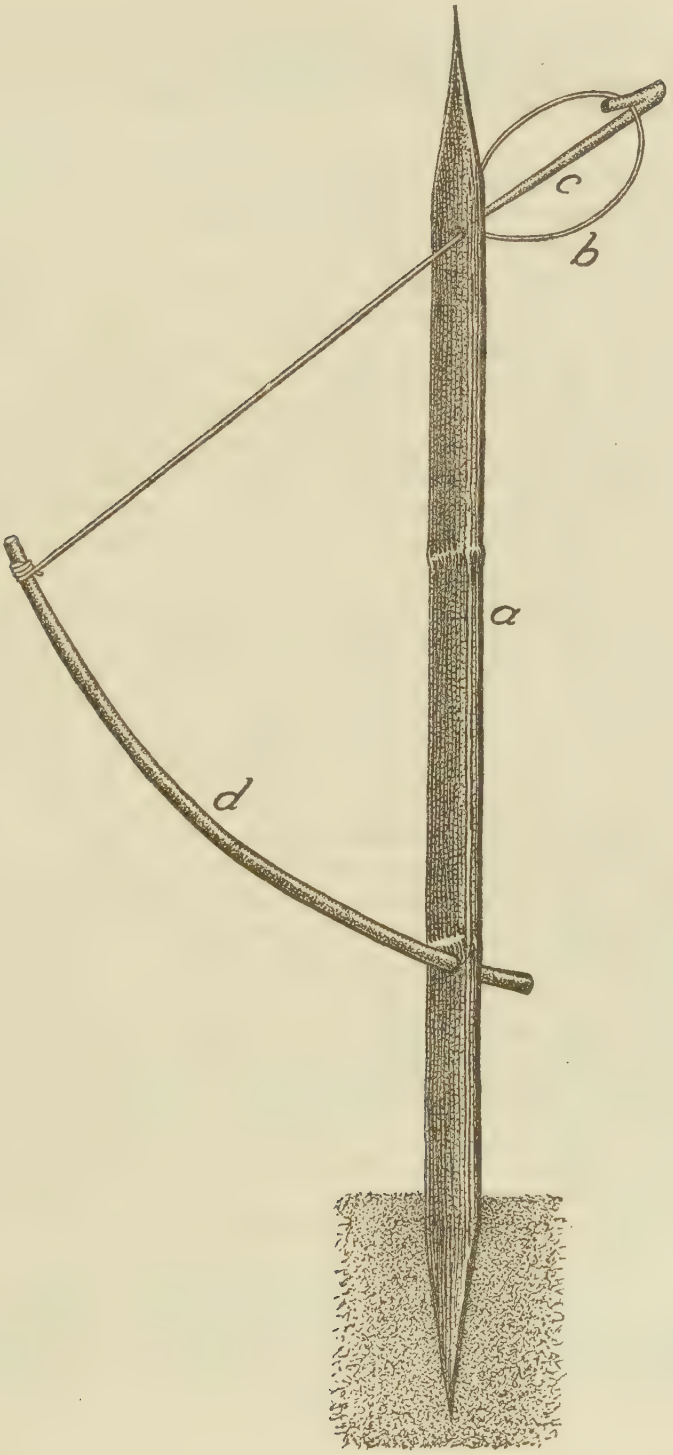


FIG. 3. The *patikding* trap.

by the weight of the platform, plus the tension of the spring-pole. With any pressure against the platform, the trigger is released, and the slip-noose spread over the platform closed. This same trap with only minor variations is found among the Ipági-Egóngot of Quezon Province, and is used for catching wild chickens and civets. The Egóngot call it *paséklaw.*

The bintáy.—This type of trap for small birds is commonly constructed by the Pinatubo pygmies and is widely distributed throughout the Philippines (see figure 4). This trap consists of a bamboo stake, called the *tikdán,* a bamboo bow, trigger, slip-noose, and a bait. The stake (*a*) is stuck vertically in the ground, and the upper end is sharpened to a pin point so that the birds cannot land there. A hole is made through the stake near the top through which the end of the slip-noose passes to the bow. As is shown in the text figure, the bow is merely inserted through the stake near the ground, and provides the force for closing the slip-noose. The slip-noose (*b*) is spread over the trigger (*c*), and the trigger is tightly wedged in the hole through which the cord passes to the bow (*d*). This keeps the bow taut and also provides a support for spreading



SIG. 4. The *bintáy* trap.

the slip-noose. A bait of charcoal or crickets is hung on the stake above the trigger and noose. When a bird, attracted to the bait, lands on the trigger, it is disloged, and the slip-noose closes around the leg(s) of the bird, pinning it against the stake.

If this type of trap is placed in a tree, as is frequently done, it is called *paratáy*. Varieties of this trap are used by the provincial Tagalog who call it *bítag*.

The kálot-uwíha.—This deer trap, hence *uwíha*,[122] is made by simply proping a large slip-noose made of a whole, trimmed rattan in a deer trail, so that, the large noose, the *kálot*, is neck high. The end of this rattan "rope" is attached to a small movable log placed nearby. The noosed deer is forced to drag the log in order to escape, and the log eventually catches in the undergrowth, trapping the animal. *Lübnóy, Calamus* sp., is said to be the best rattan for this "rope," and a piece about the thickness of the index finger makes a strong and efficient noose.

The tábing.—The two civets which are common in the Pinatubo area, the *muháng* (*Viverra tangalunga*), the *lamídan* (*Paradoxurus*), as well as the feral domesticated cat, the *dagáw*, are caught with this trap.[123] The trap is set in the center of a log which has been purposely placed, or which has accidentally fallen, across a stream. A small, strong slip-noose is held upright, at right angles to the log, by two bamboo stakes. These stakes are inserted in shallow holes made in the log. Splits made in the stakes hold the noose loosely, as well as upright. Additional stakes are placed on both sides of the log to channel the animals into the noose. The end of the slip-noose is tied to a fairly long, slim branch which is laid

[122] Many terms are also utilized by the pygmies to describe the life cycle, etc., of the single species of deer (*Cervus philippinus*) found in the Pinatubo area. The female deer is called *láman*, a young male with short spikes, *túdu'* (*turú'* in Bot.-Sbl.), an old male with many horns, *hungáyan* (from *hungáy*, "horn"), a male deer with horns just beginning to branch, *kalatáy*, one with horns that are shedding, *namaknít*, and one with broken horns, *namungíl*. In addition, very large deer, male or female, are called *búlog*. The nesting places of the deer are called *kalopkóp*, and their sounds, *bíyu'*.

[123] An old male or female civet is called *kunínat*, and the kittens, *oymók*. On the contrary, the kittens of domesticated cats are called *úning*. The civets are a highly prized food among all of the Pinatubo Negrito groups, but only particular individuals will eat the feral domesticated cat.

lengthwise on the log. When the civet or cat is caught in the noose, this branch called the *batangán*, will drag at right angles to the flight of the animal, and as in the case of the *kálot-uwíha*, will quickly trap it.

The hallóng.—Varieties of this wild chicken trap are found among many Philippine ethnic groups. A tamed wild rooster, or a domesticated rooster, is staked as a decoy, the *pangáti'*, in the center of a large number of slip-nooses.[124] These beautifully woven nooses are attached to a base-cord which is, in turn, staked to the ground, and which runs in a square on three sides of the decoy. The fourth side of the trap is formed by the base of a large tree, or fallen log, which thus forces the wild rooster to enter and fight the decoy bird from one of the sides protected by the numerous upright nooses. The decoy bird is staked in the center of the trap by a cord to its leg, called specifically *hIIl*, which prevents the decoy from also becoming entangled in the numerous slip-nooses.

The specimens of this trap in the Philipine National Museum which were collected among the Zambales Negritos are all made of the rattan, *láwin-naudít*, *Calamus* sp. The cord to the leg of the decoy is made of either *kuliyát*, *Gnetum indicum* (Lour.) Merr., or *dalúnot*, *Pipturus arborescens* (Link.) C. B. Rob.

Using this trap is as much a sport as a food-getting activity, and each Negrito trapper very carefully selects his decoy rooster by counting the scales on its legs. Specific numbers of scales are said to be favorable for particular individuals. Men in the surrounding lowland groups select fighting cocks in the same manner. In a following section of this manuscript (Plants possessing supernatural power), it will be seen that the decoy birds are also charmed by the use of plants so that they will attract many wild cocks. The use of this trap requires infinite patience, and according to the Negritos considerable privation, as it is necessary for the hunter to hide near his trap in order to protect his decoy, as well as to capture the wild rooster when it is noosed.

The báih.—Three varieties of the "belatic" type of trap have been used by the Pinatubo Negritos, but today they are rare in most areas because of their danger to hunters and travelers.

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[124] *Hílo'* (*sílo'* in Tag.) is the generic term for all types of nooses. This term also defines a simple device used for catching quail. A fine slip-noose made of horse hair is tied to a small bamboo stake. Many of these are placed in the trails of the quail which are numerous in the grasslands. Bait is scattered nearby.

Furthermore, the extensive use of guns at present has helped to displace this trapping device. The typical *báih* consists of an arrow or short spear which is driven across the path of a wild pig or deer, when the animal has struck a trip-cord. Tremendous force is imparted to the shaft by a horizontally bent spring-pole (*cf.*, the list of plants above which are used for spring-poles). This type of trap, as used by the Zambales Negritos, was thoroughly discussed and illustrated by W. A. Reed,[125] and it is unnecessary to redescribe it in detail herein.

Reed's description is of the common "belatic" [126] which uses an arrow made of a small straight limb, and a large sharp projectile point fashioned from bamboo, usually, from the introduced *bo:'-mantűg, Gigantochloa levis* (Blco.) Merr. This specific type of projectile point is called *talápa,* and is illustrated in Plate 8, fig. 6. In addtion, the Pinatubo pygmies employ two other varieties of this trap called the *babádog,* and the *tugálbo,* which were not mentioned by Reed. The former is identical in construction and use to the *báih,* but drives a stout, blunt pole which either stuns the animal or breaks its legs. The *tugálbo,* or *tugálbo-ha-tagáy,* is an ordinary bow and arrow, the latter with a large metal point, rigged in the same way.

The Pinatubo Negritos living in the Kawayan area, and the Aburlin Pagans (see Map), still utilize the ordinary "belatic" rather extensively, but carefully mark the location of each trap with pointers, the *tádaw* (*túraw,* Bot.-Sbl., and *hal-ák,* Aburlin). The latter are merely upright sticks split to hold one or two short lengths of bamboo with the sharpened ends pointing toward the trap. These groups also employ a measuring device, the *hukű,* for obtaining the exact height of the trip-cord, and shaft, so that it will properly strike the animal. Among the Aburlin, these are attractively carved from a hard wood with height marks for the pigs and deer. One that I saw at Bakóng (see Map), was made from *bálung-áyta, Diospyros* sp., and had a realistically carved head of the Tarictic Hornbill on the upper end.

The tugálbo-ha-lúta'.—Pitfalls are still utilized by some of the deeper Negrito groups. The pits are placed in the trails

[125] Reed., W. A. Negritos of Zambales. Manila (1904) 45–46, *fig. 1.*

[126] Among the Pinatubo Negritos, the term *balátik* defines that part of the shaft where the bamboo projectile point and the wooden pole are joined, but among many other ethnic groups, words similar to this one are the generic terms for this type of trap.

of the wild pigs and deer and are dug about two meters deep and square. At least fifty sharpened bamboo spikes, called specifically the *ludón,* are placed in the bottom of the pit, and these impale the animal when it crashes through the cover. The cover, *tagmík,* is made of reeds, grasses, and leaves, and is built so as to blend perfectly with the trail. Brush fences are built on both sides of the pit in order to channel the pigs and deer into the trap.

The parukló'.[127]—Impaling stakes of sharpened bamboo are a simple, but, if cleverly placed, deadly device for pigs and deer. Many are placed in the animal trails at the bottom of slopes. Pigs or deer rushing down the incline are impaled on the slanting spikes. If there are a number of trails in a particular area, all but the one leading to the impaling stakes, or to a pitfall, will be blocked off by brush barriers, the *abüh.*

During the course of my field work in the Philippines among non-Negrito groups, I have frequently encountered all of the traps described above except the *láwan,* and the *tábing.*

PLANTS USED FOR CORDAGE

The slip-nooses, noted in the above discussion, as well as small string and larger twine for innumerable other purposes, are all made from the bast, or outer bark, of specific plants. Smaller cordage, called in general *yúbil,* is made by merely rolling the strands of the bast or outer bark against the naked thigh. Larger cords are made by twisting together two or more of the rolled strings. Rope is made, as we have noted, of trimmed whole stems of rattan,[128] or by twisting together

[127] The Polillo Dumagat use bamboo and the dried stem of *bünbün, Donax cannaeformis* (Forst. f.) K. Schum., for impaling stakes. These spikes are called *pasólu'* (pasúlo, Tag.).

[128] The Pinatubo pygmies recognize nineteen different rattans, which are called in general *láwi,* and each has a specific, or locally coined, name. These are: *lübnóy,* source of water, edible shoots, slip-nooses, etc.; *alimbúbo,* source of water, edible shoots; *limúdan,* gathered and traded into the lowlands where it is shipped to Manila, and used for making furniture; *mamugtóng* (from *bugtóng,* "one and only," as the plant grows singly), furniture, and the bitter shoots eaten as a medicine for colds; *hohokóng,* split for tying, edible shoots; *bulílat,* tying, edible shoots; *dirri',* tying; *malikóban* or *malaúban,* tying, and for the "outer wrapping" of arrows; *dit-án,* whole stem for rope, split for tying, and edible shoots; *malantó',* a brittle rattan having no use; *babúyan,* rope, and tying; *láwin-naudit,* traps, baskets, and cradles; *pihá',* projectile points, bolo handles; *yamtók,* tying, material for baskets; *tayíktik,* for horsewhips among the Sambal; *kulakling,* rope and tying; *hamóy,* tying; and *manginánat,* traded into the lowlands where it is made into furniture. Unfortunately, only a few of these rattans were found in fruit and/or flower, and collected.

three lengths of split, green rattan or bamboo. Ropes, the *pidíno,* used to tender the water buffalos are also made from the whole stem of the vine, *miránda, Clematis* sp.

All of the following plants used for cordage by the Pinatubo pygmies, except *malagayáman* and *úlip,* are described in Brown's, Philippine fiber plants.[129] and their usage is apparently widespread:

Bágo-bágo or *balibágo. Helicteres hirsuta* Lour.

(shrub) These two plant names are found in many Philippine dialects.

Bawüng. Commersonia bartramia (Linn.) Merr.

(small tree) Local names: *bágo* (Tag.); *bágun* (Klg.); *baliturug* (P.–Bis.).

Dangóy. Grewia multiflora Juss.

(small tree) Local names: *dangli* (Tag.); *danglín* (Pamp., Ilk., Tag.); *danglóg* (Ibn.).

Ingwál. Flagellaria indica Linn.

(vine) Local names: *ingual* (Ilk.); *inual* (Pang.)

Lapnít. Sterculia sp.

(tree) Local names: *lapnit* (Ilk.) for *Sterculia* spp., and *lapnít* (Ibn.) for *S. ceramica* R. Br.

Maguguhí or *magkakatin-áy. Thespesia lampas* (Cav.) Dalz. and Gibs.

(shrub) There are descriptive local plant names.

Malagayáman. Pothos hermaphroditus (Blco.) Merr.

(vine) This plant name means "like the centipede (*gayáman*)," and crudely describes the shape of the leaf. *Columella trifolia* (Linn.) Merr., is also called by this same name, but has no use.

Úlip. Cypholophus moluccanus (Blm.) Miq.

Yabóh. Abroma augusta (Linn.) Linn.

(shrub) Local name: *anabó* (Ibn., Ilk., Tag., Bis.)

Today, thread, called *úbag* or *hoy-ót,* is obtained from the lowland stores, or merely removed from old clothing, but in the past it was made from the covering of the banana stalk. This sheathing was soaked in muddy water for at least one week and was then stripped and rolled against the thigh.

[129] Brown, W. H. Philippine fiber plants, minor products of Philippine forest. Manila, Bureau of Forestry, Bull. 1 (1920).

When metal needles, *kadáyum,* are not available, sharpened bamboo slivers are used as awls.

KNOTS

The Pinatubo pygmies systematically employ a sizable variety of knots and splices in everyday activities, and the different types have specific or descriptive local names, as well as the general term *buknó*[130] for "knot," and *hublóng* for "splice." Furthermore, the different knots have specific functions. The *lumpáng* (see fig. 5–*d*), for example, is always used for tying the two ends of the cordage forming the head-straps used by the women in carrying pack-baskets. The knot of the bow string is identical throughout the Zambales Range. Specific knots are used in the construction of the traps (see figs. 2 and 3), for as the pygmies state: "If the proper knots are not used, the trap will catch no animal."

Beliefs are encountered concerning the use of knots; for example, when a woman is pregnant, neither she nor her husband should make cordage, step on cordage, or tie knots, for any of these actions might provoke a difficult childbirth.

In addition to the knots illustrated in figure 5, the following knots are commonly employed by the pygmies; the clove hitch, the slipknot or *hagliót,* Englishman's tie, the overhand knot or *buknó,* and the square knot or *haklát.* Three types of splices are also encountered; the short splice, the Matthew Walker Stopper or *buknón-bakéro,* the "cowboy's knot," and the eye splice called *gamá* or *matá* (the latter term also meaning eye).[131]

PLANTS ASSOCIATED WITH EDIBLE LARVA, PUPA, AND INSECTS

During specific months, the Pinatubo pygmies add to their diet a number of adult insects, as well as their larva and pupa. The Negritos know the specific plant host of each insect, pupa, or larva, and the time of the year when these can be gathered in sufficient quantities to be of food value. The larva and pupa are boiled in the bamboo cooking tubes, and the adult insects are roasted or boiled.

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[130] *Butnó'* (D.-Neg.), *butnó* (Bot.-Sbl.), *butnól* (Pamp.), *bohól* (Tag.)

[131] The English equivalents, with illustrations, for the knots employed by the Pinatubo Negritos can be found in Webster's New International Dictionary of the English Language (1946) 1372.

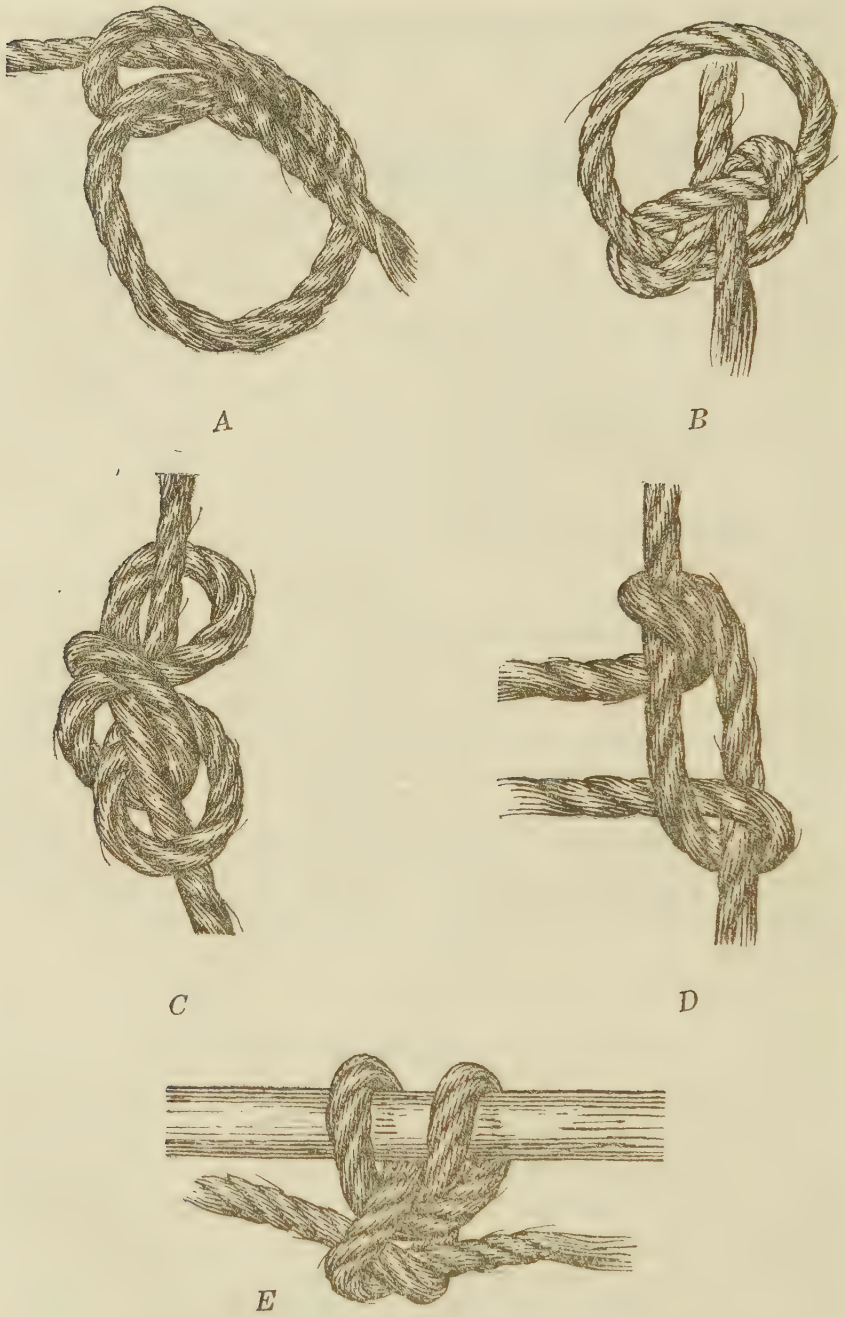

FIG. 5. Knots

(a) *buknón-dawí*, (b) *ginagáng*, (c) *klIfkII*, (d) *tumpáng*.

The important insect foods,[132] and their plant hosts, are set forth below:

Úang. Rhynchophorus sp. The adult of this "palm weevil" is a common food in December and January. The larva called *alálo,* as well as the pupa called *ambáling,* are also favorite foods. These latter are obtained in large numbers from the various palms in the Pinatubo area during the months of September and October.

Taúwah. Xylotrupes sp. The "scarab beetles" are common during the months of October and November, and are sought primarily on the leaves of *küya'-kűya'-kamána, Abrus precatorius* Linn. This plant name means the "spirit's knife."

HIlűng. Anomala sp. This brilliant, green beetle, a real Negrito delicacy, is found in great numbers on the leaves of the *bagná', Glochidion urophylloides* Elm., and according to the Negrito, in fewer numbers on the leaves of the common *manggá, Mangifera indica* Linn. As we have noted, the latter is not a native of the Philippines.

Ábaw. Lepidiota sp. This beetle is very common in March and April and is found in large quantities on the common grass *táib, Saccharum spontaneum* Linn. subsp. *indicum* Hack., as well as on the leaves of the *agóho, Casuarina equisetifolia* Linn. A small trench is dug around the latter tree, and a smudge-fire built close to the trunk. As the smoke billows upward, the branches are shaken violently, and the beetles fall into the trench. Using this method, the pygmies obtain great numbers of the *ábaw* (*ábal-ábal,* Ilk.).

Bíkiw.—During the dry season this "wood-boring caterpillar" (Lepidoptera) is obtained from the roots of the vines, *duglóh, Mucuna sericophylla* Perk., and *pamikíwün-naputí', Canavalia luzonica* Piper.

In addition, the Negritos relish a number of other insects gathered during the dry months in the grasslands: the *yáy-yay,* or "big-cicada" (Cicadidae); the *biogobíl,* or "green-locust" (*Eyrtacanthacris* sp.); the *kolahláh* or "long-horned grasshopper" (Locustidae). A long white larva of a bettle is commonly found in the dead trunks of trees belonging to the genus *Ficus.* These grubs are a prized food among all of the pygmies in the Zambales Range, and among the Pinatubo

[132] Otanes, F. Q. Entomologist of the Bureau of Plant Industry, Manila, graciously identified all of the insects cited, from specimens which I collected in the Pinatubo area.

Negritos are called *kátid.* A beetle, *dúmug,* is gathered in sizable quantities from the trunks of the *kátoh, Sandoricum koetjape* (Burm. f.) Merr., which we have seen is of prehistoric introduction, and from *balináwnaw, Otophora fruticosa* (Roxb.) Blm. Finally, the *úit,* also an edible beetle, is found throughout the year in the bamboo thickets.

PLANTS YIELDING DRINKABLE WATER

As we have discussed in the Introduction, whole Negrito villages on the middle slopes of Mt. Pinatubo derive their entire water supply during the dry months from specific trees and/or vines. The principal trees yielding this pure, fresh water, which the pygmies call *toktók,* are:

ÁymIt. Ficus minahassae (Teysm. and de Vr.) Miq.
Alyáwa. Oreocnide trinervis (Wedd.) Miq.
Local name: *bulilâwa* (Tag.)
Kayáhan. Ficus variegata Blm.
Lípah. Laportea meyeniana (Walp.) Warb.
Tübóy. Ficus nota (Blco.) Merr.
TItIphán. Ficus barnesii Merr.

The following two vines, as well as the rattans previously noted, also yield water, but the *anópo* is dry during the day, and the water must be obtained at night or early in the mornings and evenings. As we shall see in following discussions, the watery sap of these two vines is more important to the Negritos as a medicine.

Aladíad. Tetracera scanders (Linn.) Merr.

Anópo. Conocephalus sp.
Local names: *hanopol* (Tag.); *anopul* (Bil.); *anapul* (Ig.)

The most important of these plants which are prepared daily for a water supply is the *tübóy* and *áymIt.* The Pinatubo pygmies would not be able to live in the Yamót and Yamtók areas during the dry months, if it were not for the presence of these two trees in large numbers.

During the wet months, rain water is caught by means of a basin of banana leaves, the *palkóng,* and supplements the water supply from the trees. All Philippine groups with whom I have worked will on rare occasions use plants as a source of drinking water, but I have not seen or heard of another Philippine people dependent upon this supply for semisedentary habitation.

PLANTS AND THE BELIEF IN SPIRITS

The Pinatubo Negritos believe that a myriad of spirits, generally called *aníto* or *kamána*, inhabit the total environment. A number of these spirits are specifically evil, but in general the "environmental spirits" may be either malicious or friendly depending upon the purposeful, or accidental, relationships that the individual Negrito has with the spirits.[133]

An example of a specifically evil and very dangerous spirit is the *balandíng*. A pygmy seen or caught by this spirit in the forest is immediately killed. His relatives will know that it was an act of *balandíng* when there is much blood on the ground near the body of the person, but there will be no wounds on his body. This spirit is also known to live in the fighting bolo, the *katána*. If without human stimulus the bolo and scabbard are seen to move, the Negritos present will flee. Should the bolo accidentally or purposely be removed from the scabbard, it will strike and kill. This appears to be a rationalization of crime, for I have heard a number of Negritos remark: "If the owner of a *katána* is mad at someone, the *balandíng* will get out of the scabbard, and kill that person!"

In contrast to the few spirits which are only evil and dangerous, countless spirits inhabit the environment which are normally friendly and helpful but which, when provoked, may cause sickness even death. For example, *balándang* is a powerful supernatural who is the leader of the wild pigs and deer, and who with *kabhokán*, greatly influences the outcome of hunting activities. If this spirit is merely wandering in the forest, it is useless to hunt, for when *balándang* is heard calling to his pigs and deer, the hunter will get no game. These spirits will frequently play tricks on the hunters. Pigs, the property of *balándang*, or this spirit in the guise of a pig, will appear or vanish, grow large or small, as the hunter watches.

An experience which a Negrito hunter had recently while hunting in the forest near Tarukók (see Map) is typical of the stories of *balándang*. The hunter had just killed a pig, when lo, he saw another. He shot and killed this large pig too!

133 Father Vanoverbergh's statements about the "universality of monotheism" among the Negritos of northern and eastern Luzon are in no way applicable to the Negritos of the Zambales Range, and I would question the validity of his observations among the Negrito and Dumagat groups on the east coast of Luzon. *Cf.*, Negritos of Eastern Luzon, pp. 160–164; Negritos of Northern Luzon Again, pp. 540–558.

Still not satisfied, the hunter hid the two pigs, and continued to search the forest. After hunting for a short while with no further luck, he returned to where he had left the two dead animals. They were gone! *Balándang* had gathered his flock! The moral of this particular experience is obvious.

Recognizing the power of *balándang* and other spirits, the pygmies perform specific activities to maintain and insure harmonious relationships. Thus, before entering the forest to hunt, the pygmy shouts:

Agkáy nopún tumála' balándang, ta hikáy yapún itáman! Don't you first search *balándang*, but instead we will go first! (free translation)

If the hunter has been successful, he will cut off a portion of the meat and/or liver of the kill, place it on a rock or log nearby, and shout: "This is your share *balándang!*" If this is not done, the hunter might become sick, or the spirit might maliciously place a stone or log in the hunter's path, and cause him to break his leg as he was returning from the chase.

The spirits are very human in their actions and desires. Specific trees, bamboo thickets, rocks, and caves are their homes, and particular forest glades, as well as animals, their property. They have families and children. Not far from Ugík (see Map) there is a large clump of bamboo which, according to the Negritos, is always cleared of dead growth. The Negritos state that this is the nightly activity of the spirits, as they live there, and no pygmy would wittingly cut this bamboo however great the need. Sometimes a Negrito will unwittingly antagonize a spirit, and will become sick. For example, a man might accidentally burn the home of a spirit while he is making a clearing (see the discussion of the curing-séance below). The evil *balandíng* might be inhabiting a rattan which will only be known to the pygmy when he cuts the stem, and blood gushes from the slash. This unfortunate Negrito, according to informants, will certainly become sick and die.

Children are disciplined by the fear of the spirit(s) of specific plants. The Negrito mothers commonly tell their children; "If you arise late, you will be caught by the spirit of the *alawóy* (a tree, *Vernonia vidalii* Merr.), and you will be sickly." It is believed that, "If you play with the fruit of the *tübóy* [*Ficus nota* (Blco.) Merr.], you will not be able to urinate." "There will be a famine, if you see the flowers of the *kawáyan-mantűg* (*Bambusa spinosa* Blume), or of *kawáyan-kilíng* (*Bambusa vulgaris* Schrad.)." These two bamboos rarely bloom (many

marginal people closely associated with these plants deny that they do bloom) which probably accounts for this belief.

In general, it is the hundreds of stories about inexplicable and unusual events in the lives of the individual pygmy, many of which are related to plants, which support and develop their belief in spirits. In the following treatment of Medicinal plants and practices, much more will be said about these animistic beliefs, for it is by causing sickness, injury, and death that the spirits express their antagonisms.

Dangerous plants.—Many plants are recognized by the Pinatubo Negritos as being solely the property of spirits, and for this reason are potentially dangerous. If a pygmy should deliberately, or even accidentally, violate these plants sickness, perhaps death, will be the penalty demanded by the offended spirit(s).

The relationship between the Negrito and dangerous plants was pointed out to me many times while collecting specimens, and on one occasion near Yamtók, I recorded the warning of an old Negrito woman about a plant belonging to the spirits. We had located near Yamtók a rattan bearing fruit, and while on the way there, we had stopped at this village telling what we were doing, and the location of the rattan. Immediately, an old woman spoke:

Atóy láwi ya ikón kawkamána.
Agmoyó tanputúhin ya puón na, bahtá kuwín moyó taná ya buláklak na boy bulúng!

That rattan is owned by the spirits. Don't you cut the stem, just get the flowers and leaves! (free translation)

In this particular instance, the rattan was not *limúdan, Calamus ornatus* Blm., which is never violated by the more conservative pygmies, but *malikóban, Calamus* sp., which is useful in many ways. Nevertheless, this particular plant was believed to be temporarily the abode of spirits and thus was tabu.

My best friend and informant among the Pinatubo Negritos, with whom I lived for almost one year, refused with every excuse possible to show me the location of three trees which are always the homes of spirits; the *dalaído, dulín,* and *diá'a.* He suspected that I would collect them, and absolutely refused to expose us to danger. Despite these beliefs which inhibited the collection of "dangerous plants," a few were obtained, one identified from photographs, and another from personal field observation.

Bangál or *taká'-dímûnyo. Sterculia foetida* Linn.

The descriptive plant name, *taká'-dimúnyo,* means the "waste matter of *dimúnyo* (a spirit, *demonio,* Sp.)," and it is believed that this spirit lives in the very evil-smelling flower of this large tree. The Pinatubo Negritos, as well as the Sambal in the Municipality of Botolan, will not build their dwellings near this plant. Nevertheless, some of the pygmies will eat the seeds of this tree for food, and as a purgative.

Bayüngyűng-binangúnan. Nepenthes alata Blco.

All species of the "pitcher plants" are considered very dangerous by the older Negritos, for they are believed to be the personal property of the malign spirit, *binangúnan.*[134] The *bayüngyűng* is a short, water tube made of bamboo describing the "pitcher" of these plants in which insects drown and decay and provide food for the plants.

This plant was first obtained in a rather amusing manner. I had asked a group of school children at Villar about pitcher plants, and whether or not they knew where some of these plants were. A young Negrito boy, Paíng, said he did, and within an hour had returned with an excellent specimen in flower. I did not think anything more about the incident until the next day when I learned that Paíng had been warned by an old man about the dangers of this plant, and how it was the property of *binangúnan.* As this occurred after he had collected the plant, Paíng was very frightened, and he spent a sleepless night. Subsequently, the story set forth below was obtained from the group:

During the time of the first people, there was a couple who went to live along the river. They thought that they had selected a good place to stay, but it so happened that it was a bad place, for it was near a pitcher plant. During the first night at the new place, the couple felt that strange things would happen to them, but they did not know what to do. All of a sudden they heard a loud murmur, and saw that it came from a huge fly. When the murmur stopped, they heard a loud hiss. A few moments later *binangúnan* appeared, and stopped near their new dwelling. The spirit looked somewhat like a horse, but there was a fire

[134] *Binangúnan* means literally, "the place where something has arisen," from *bangon,* "rise up." In a manuscripts in the files of the National Museum concerning the Aeta of Baler written by Damian Amazona for Laurence L. Wilson, he notes that *binangónan* is the "god of danger, sickness and death."

Beliefs about the spirit *binangúnan* are also encountered among the Sambal in the Municipality of Botolan.

on its back from the head to the tail. As they watched, the spirit drank from the pitcher plant which they had not seen. The couple hoped that the spirit would not see them.

The next morning they moved their house, for they were very frightened at what they had seen. But, the spirit had seen them, and followed the couple to their new location. He caught and killed them by pulling out their fingernails, and sucking their blood.

Bigá'. Alocasia macrorrhiza (Linn.) Schott.

This giant herb, popularly called "elephant's ear," is said by the Negritos to be the *táü'* (taro) of the spirits, and as a matter of fact, the plant belongs to the same family as the cultivated taro, Araceae. One informant related how a Negrito friend of his had become very ill, because he had foolishly used the huge leaf of this plant as a "rain cover," *tulóng*. The death of the Sambal school teacher at Morassa, a number of years before the past war, is still attributed by the Negritos to the angered spirits of this plant. Despite repeated warnings, this teacher had taken a small *bíga'* and had planted it in his yard. Shortly thereafter he became very ill and died.

This plant was identified from numerous photographs which I took of a specimen at least 15 feet in height and with leaves over 5 feet in length.

Hukúh. Biophytum sensitivum (Linn.) DC.

The Pinatubo pygmies believe that this minute, pantropic herb, which folds at night, is a very dangerous plant and if touched by a small boy or girl, will cause their death. According to Merrill, this plant is called *damong-huya* in Bisaya, and *hoya-hoya* in Panay Bisaya.

Limúdax or limúran. Calamus ornatus Blm.

According to the deeper Negritos, this rattan is solely the property of the spirits and no pygmy would wittingly utilize or destroy this plant. The more acculturated Negritos, and the Sambal living in the mountains, gather and sell this rattan into the lowlands where it is used for furniture.

This plant name is encountered in many dialects in central Luzon and Professor Sulit suggests that the vernacular names are derived from the Tagalog name of a common snake, *alimúran*. The pattern on the skin of the fruit of this rattan is very similar to the snake's skin. This is not, however, the name of a snake in Sambal.

Püda'-kamána or *kI'táng. Merremia umbelleta* (Linn.) Hallier f.

This plant, which has an unpleasant odor when the stem is broken, is said to be the property of the spirits. In the Negritos' system of botanical classification the true *püda'* is *Pueraria phaseoloides* (Roxb.) Benth., and the above plant is differentiated by including the term for "spirit," *kamána.* No cognate was found for the plant name, *kI'táng.*

Payápa. Ficus sp.

This tree, one of the largest in the Pinatubo area, is carefully avoided, as it is always the home of spirits. This plant was identified by personal observation while in the field, for I was unable to collect a specimen without antagonizing my companions. This plant name also appears in Tagalog for *Ficus payapa* Blco.

Pakó'-tulüng. Nephrolepis hirtula (Forester) Presl.

The malign spirit, *tulüng* (see the Introduction), owns this fern, and it is judiciously avoided by the Pinatubo pygmies.

It is interesting to note that unusual properties which a plant may have, such as the Pitcher Plants, plants with flowers and stems having strong odors, etc., are apparently important in conceptually stimulating the relationships of a plant with spirits. Plants which are non-edible, e.q., mushrooms and earfungi, are classified in the same manner. Strangely, the Pinatubo Negritos do not fear the strangling figs, commonly called *baliti,* which are believed to be homes of spirits by many Philippine people.

Plants possessing supernatural power.—A few plants are traditionally believed to have intrinsic supernatural "power," when manipulated, and are employed as love charms, as protection against the evil spirits, and so forth. These plants, enumerated below, are common property and their uses as charms, etc., are institutionally established and recognized. In addition, individuals, particularly the hunters, will have personal charms, *bolá',* which in many instances are also derived from plants. These talismans are highly esoteric and are recognized as having "mana" only through the magico-religious experiences of one person. The *bolá'* are rarely shown to another person, or even discussed. I had known a young hunter for many months before he produced a dried, frog-like seed (which was identified by

Professor M. D. Sulit of the National Museum as a *Dracontomelum* seed) and the following story:

I was hunting frogs near the river when I saw one. The frog tried to escape by going under a rock, but I reached into the hole and caught it. The frog urinated on my hand. However, when I opened my fist, I had this (the seed)! I know it came from the frog, for whenever I carry it frog hunting, I am very successful.[135]

The plants generally recognized by the group as having supernatural power are as follows:

Balikwáh-damwwág. Cissus repens Lam.

The leaves of this plant are merely rubbed on the back of a wild or fierce carabao to make it tame. This is a local descriptive plant name.

Banhíkol. Piper retrofractum Vahl.

The stem of this vine is scraped, the shavings placed in water, and the water heated. A fighting cock used with the *hallóng* trap is smudged with the vapor of this water. Charming of this type is called *húbo'*, in this particular instance *húbo'-manók* (*manók* is chicken), and insures that the decoy-cock will attract many wild roosters to the trap. The lowland Sambal prepare their fighting cocks, the *habóng*, for the cock-pit in the same manner. A similar usage is found among the Tagalog and Merrill notes that this plant is called *súbo-manók* by the Tagalog.

Diwal-ák. Osbeckia chinensis Linn.

If a Negrito is traveling and wishes to have a casual love affair on the way, he will carry the blossom of this plant tucked into his loin cloth. Any object utilized to attract the opposite sex is called *gayúma*. The latter term is heard throughout the Philippines for "love charm." No cognates were found for this plant name.

Dumúdoh. Mitrasacme polymorpha R. Br.

This small weed is used as a love charm by the Negrito men. The whole plant is very gently brushed on a woman's back so

135 Frogs, particularly during the rainy season, are an important additional source of food. The generic term for frogs is *pahínga'* (this means "rest" in Tagalog, and is a fine example of semantic change) and they recognize at least twelve different ones: the *pahínga'-bákil, mamakpák, taláta, ugík, gügutí', píhak, pilák, talangbá', lumóg, buktót, yagópyop,* and *talakádang*.

that she is not aware of it, or her comb is borrowed on some pretense, and the plant rubbed on her comb. No related terms were found in Merrill for this plant name.

Hüláng. Micromelum inodorum (Blco.) Tanaka

The seeds of this large bush are made into a necklace and worn as a protection against the *mandangá'*. *Dangá'*, is an "evil power" manipulated by unscrupulous individuals practicing a form of sympathetic magic. If this "witch," the *mandangá'*, sees the footprints of a person whom he dislikes, he covers the footprints with earth, and while doing so cries. The person whose footprints were covered will then become thin and may die. Numerous other activities, such as this one, are believed to characterize the behavior of the witches. The *dangá'*, and bride-price are the two constant sources of trouble among the Zambales Negritos, for individuals suspected of practicing this evil are sometimes killed by the relatives of the person who are believed to have been made ill. No cognates were found for this plant name.

Húbo'-áho. Bolbitis heteroclita (Presl) Ching.
Tectaria trifolia (v. A. v. R.) C. Chr.

The leaves of either one of these two ferns are burned and the ashes mixed with the food of the hunting dogs to provide them with an extraordinary power for scenting the wild pigs and deer.

The *láda-bálang,* the spontaneous pepper of American origin, is also used as a dog-charm. The hunter chews the leaves and spits them into the mouth and ears of the dog. In addition, a flying ant called *hulíhol* is roasted and placed in the dog's mouth so that it will easily smell game.[136] The plant name,

[136] I have encountered charms for hunting dogs among all of the Non-Christian groups with whom I have worked. Among the Polillo Dumagat, a shrub called *dilá-ni-tabíli,' Rauwolfia* sp., is constantly used. The leaves are pounded and then rubbed on the head of the dog so that it will be "brave" in hunting, and will attack the pigs. The Ipagi Egongot charm the hunting dogs with a practice called *úgi-úgi.* The hunter gathers the leaves of at least ten plants of which the following were collected: *paúgi, Staurogyne* sp., *saálang, Tectaria decurrens* (Presl) Copel; and *ámo, Staurogyne* sp. The leaves are then crushed together, soaked in water, and pounded. When this has been accomplished, the hunter rubs the mash on the nose of the dog, or allows the dog to smell the mash of leaves, and then rubs the legs of the dog with the mash in a downward motion. As he rubs the leaves on the dog, the hunter always blows on the body of the dog.

húbo'-áho, is descriptive denoting its use; *húbo'*, "animal charm," and *áho*, "dog."

Püdá'. Pueraria phaseoloides (Roxb.) Benth.

The leaves of this vine are rubbed on the arrows and bows, and in recent years on guns, for luck in hunting. Invariably, the action will be accompanied by the following formula. *PakahabátIn kay*, which when translated freely means, "Let there be luck for all." No cognates were found.

Palúmay. Lycopodium phlegmaria Linn.

This epithytic fern is the most common form of *gayúma* among the Pinatubo pygmies. Many of the Negritos carry a part of this fern with them at all times to keep people or animals, particularly snakes, from becoming angry at the user. I had a Negrito man with me in Manila for three months before I discovered that he was carrying a portion of this fern in a matchbox.

The fern is also hung in the dwellings so that the household will be free from quarrels and so that no one will become angry with the owner of the dwelling or members of his family. Mere possession of a part of this plant will aid a man in the conquest of a woman, for she cannot become angry at any of his actions.

The Negritos' use of this plant has undoubtedly provoked its local name. In Tayabas-Tagalog, *panglumáy* means "anything (usually plants) which is used for a love charm" and in Bikol as well as Antique-Bisaya, *lumáy* means "love charm." The Negritos, however, do not now recognize any derivation for their plant name, *palúmay*.

Lycopodium cernuum Linn., is called *palúmay-damuwág*, the "water buffalo's *palúmay*," but it has no use.

Litlít or *kaláh-kaláh. Piper celtidiforme* Opiz.

The pygmies scrape the roots of this vine into a bowl of water and then entice the decoy rooster used with the *hallóng* trap to drink. It is believed that this will make the bird lucky and brave. This plant is also called *litlít* in Tagalog and Pampangan. No cognates were found for *kaláh-kaláh*, but it undoubtedly a locally coined plant name derived from the Sambal term for "scrape" which denotes the method in which the plant is prepared.

Patógo. Cycas rumphii Miq.

The fruit of this "palm-like" tree is made into a necklace and worn by the women and children to ward off the malign spirits. According to Merrill, this plant is called *patúgo* or *pitógo* in Tagalog.

Támbal-balandíng. Aristolochia philippinensis Warb.

Short pieces of the whole root of this vine are made into a necklace and worn to drive away the evil spirit, *balandíng*. This plant name means, "the medicine (*támbal*) for *balandíng*."

Tanyúong. Vanieria cochinchinensis Lour.

The whole stem of this vine is tied under the floorings of Negrito dwellings so that the evil spirits will not enter and make the occupants sick. This same plant, according to Merrill, is called *talólong* in Iloko and Igorot.

Plants burned under the dwellings to drive away the malign spirits.—The only use of a number of plants is for burning under the dwelling of sick Negritos to drive away the evil spirit(s) causing the sickness, or to prevent malign spirits from entering the household and complicating the sickness. This practice is also encountered among the provincial Sambal.

Fires are burned nightly under the dwellings of the Pinatubo pygmies to combat mosquitoes, but only the following plants have the "power" to inhibit the activities of the evil spirits:

Amyóng. Phaeanthus ebracteolatus (Presl) Merr.

(small tree) According to Merrill, *amúyong* is *Goniothalamus amuyong* (Blco.) Merr., in Tagalog and the plant belongs to the same family, Anonaceae, as *Phaeanthus*.

Banáhi. Murraya paniculata (Linn.) Jack.

(small tree) Local names: *banási* (Bik., Ibn.); *banaási* (Ilk.).

Kópang. Parkia javanica (Lam.) Merr.

(large tree) Local names: *kópang* (Fort Stotsenberg Negritos); *kupang* (Tag., Ilk.).

Hagód. Dasymaschalon clusiflorum Merr.

(Small tree) Local names: *sagót* (Ilk.); *hugúd* (P.-Bis.) for *Glochidion triandrum* (Blco.) C. B. Rob.

Hagód-ya-kíniw. Artabotrys monogynus Merr.

(vine) *Kíniw* means "vine," thus this is the "*hagód* vine"; *hagód* and *hagód-ya-kíniw* belong to the same family,

Anonaceae; this plant is also called *maga'amyóng* which means 'like the *amyóng*," and the *amyóng* also belongs to the same plant family.

Mágpipiyás. Glochidion llanosii Muell.-Arg.
Cnestis palala (Lour.) Merr.

(shrubs) Local names: *malakamías* (Tag.); the Negritos' plant name means "like the *píyas* (*pías*)"; the latter plant is the introduced *Averrhoa bilimbi* Linn.

Pupúlho' or *pupúho'. Goniothalamus elmeri* Merr.

(tree) This plant name was very probably coined by the Pinatubo pygmies as indicated by its construction, but I could not derive its meaning.

Four out of the above eight plants, burned under dwellings to drive away the malign spirits, belong to the family Anonaceae. This illustrates that the Pinatubo pygmies do not select useful plants at random, even if used for magico-religious functions in which there would be no demand for specific technological properties of the plants; for example, a hard wood for bolo handles. Rather the pygmies have a traditional conception of broad relationships between plants which are related—sometimes phylogenetically—and their uses.

MEDICINAL PLANTS AND PRACTICES

In order to understand the uses of medicinal plants by the Pinatubo Negritos, it is first necessary to discuss, even briefly, their "theories of disease." In the first place, the Negritos' treatment of all sickness and disease is wholly magico-religious in character. It could hardly be otherwise, for the pygmies have no tools other than observation, which is unreliable if not controlled, to measure cause and effect. Their "theories of disease," though similar to beliefs encountered throughout the Philippines have not, as elsewhere, been radically influenced by Western medical ideas.[137]

By virtue of traditional theories, the Negritos believe that their medicines have control over supernatural, as well as natural forces. All serious sickness is believed to have been caused either "directly" by malign spirits, or "indirectly" by spirits

[137] Although an extensive malarial program has been carried on in Zambales, I found only one Negrito, a teacher, who was aware of the relationship between the mosquito and malaria. The mosquito is only a nuisance to the pygmies in that it disturbs sleep.

complicating the original sickness. If, for example, a pygmy is ill by having broken a tabu, an evil spirit might attack him and cause the sickness to become more serious. This might be prevented, as we have noted, by burning specific plants under the dwellings, or by wearing necklaces made of seeds and stems of plants which have the "power" to ward off the attacks of malign spirits. All illnesses, even a common cold, are potentially serious because of the intervention of evil spirits and precautions must be taken!

The Negritos employ simultaneously several theories as to the cause of sickness and disease. The theory most generally heard, as we have noted, is that spirits "directly" cause illness through having been provoked or antagonized by the actions of an individual. In most instances, the cause of the sickness is determined, and the cure effected, by a medium, the *manganíto*, in a "curing-séance" called the *anituwán*.[138] The medium invokes personal spirits, which have been attracted to the medium who acts as the "host," to capture the spirit which has entered the body of the patient, and caused the sickness.[139] When the evil spirit has been captured, it is either appeased or destroyed by the spirit-helpers of the medium. This action alone may be sufficient to constitute a cure and there is no use of the more than two hundred medicinal plants known to the Pinatubo pygmies. On other occasions, the spirit-helper of the medium will recommend specific medicinal plants to speed the cure.

The use of medicinal plants is not, however, entirely dependent upon the recommendations of the spirit-helpers, for any Negrito can employ, at any time, known medicines, e. g., in the treatment of an ulcer. Rather, it is the attitude of the pygmies that the knowledge of the most effective plants is better known to the spirit-helpers, and to the medicine-men, than to the ordinary person. When the illness is serious, this is particularly true.

[138] A thorough discussion of the curing-séance, and the activities of the mediums, may be found in my manuscript in the files of the National Museum, 26 pages, entitled The Anituwán or "Curing-Séance" of the Pinatubo Negritos, Zambales.

[139] The similarities of the curing-séance of the Pinatubo pygmies to the activities of the Malay shaman is strikingly pointed out in the following quotation: "As a rule the object of a séance for the sick is to discover the name and desire of the spirit possessing the patient, so that it can be expelled by the help or advice of a stronger spirit or coaxed out of the sufferer's body either into the shaman's own or usually on to a receptacle containing food." Winstedt, R. O. More notes on Malay magic. Jour. Malayan Branch Royal Asiatic Society 5 (1927) 343.

A curing-séance.—To illustrate the relationship between the belief in spirits, and the Negritos' theories of diseases, a curing-séance is described below.

A man had become sick after burning a slope while preparing a clearing for planting corn. The symptoms of the sickness, according to his statements, were a heavy body and dizziness. The medium had been called, which in this séance was a woman, and the entire population of the village had crowded into one of the dwellings. As in most cases, this curing-séance took place at night, and in this particular instance it was a rather festive occasion.

A cleared space was made in the center of the dwelling, and the patient was placed in the front row of the bystanders. A young girl was playing "pandango" tunes on the guitar, for it is usually through dancing that the medium invokes the spirit-helpers and captures the spirit causing the sickness. With eyes closed the woman began to dance around the cleared circle. Suddenly, she dropped to the floor on her knees with her whole body shaking spasmodically. This was the moment of actual possession in which the spirit causing the sickness entered the woman's body. In the words of the Negritos: "The spirit is climbing her body." Then, in what appeared to be a real trance state, the woman arose, and resumed erratic dancing. Very frequently she stumbled and without the aid of the spectators would have fallen numerous times.

Another woman began to ask her questions (recorded below with the letter "Q"). As a matter of fact, many questions were asked by different people in the audience, but only those of this particular woman were answered by the spirit. Any bystander who can obtain a response from the spirits during the séance, and whose questions are answered, is called specifically, the *mamahtáng*. Then, the spirit which had caused the sickness began to answer the questions of the *mamahtáng* in a very high pitched and unnatural voice, though understandable. The Negritos, of course, insist that this is the voice of the spirit, and the medium always denies conscious awareness of speaking, or of any of her/his actions.[140] The answers of this spirit were also recorded and are set forth below (marked with the letter "A").

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[140] It appeared to me in many instances that the mediums were in a real disassociated state, and were, in fact, not wholly conscious of their actions.

In this particular curing-séance, the spirit which had been antagonized, and which had caused the man to become ill, had been captured immediately by the spirit-helper of the medium. It was this captured spirit which answered the questions. There was no questioning of the spirit-helper, that is, the personal spirit of the medium, which was the case in most of the curing-séances that I have witnessed. The dialogue between the captured spirit and the questioner was as follows:

		REMARKS:
Q. *Hiní kay habayín?*	Who is that?	The questioner is attempting to obtain the name of the spirit.
A. *Hikóy nay malháy na payápa!*	I am the large payápa!	That is, a spirit of the tree *payápa, Ficus* sp.
Q. *Intá' nanwád ka bahín?*	Why did you do like that?	Why did the spirit make the man sick?
A. *Awtá', naulám kayá itáman.*	Yes, we have been burned already.	This, of course, refers to the fact that the man had accidentally burned the tree of this spirit.—his home and children.
Q. *Awtá', hiní nangulám moyó?*	Yes, who of you were burned?	
A. *Naulán balí ko boy awanák!*	(He) burned my house and children!	
Q. *Ay mamakahámpat ka pa?*	Will you let (him) become well?	
A. *Mamakahámpat ta ko pa, nu ag omáwan na ko.*	I will let him become well, if he will give *óma* to me.	*Óma* is any type of "gift" to the spirits.
Q. *Hiní igawá, baytó moyó?*	What shall (he) give to you?	In this curing-séance the cure was accomplished by merely removing, and appeasing, the spirit. In
A. *Biyán mo kon hambóng ko ya gayáng boy kondíman.*	You give to me a gift of a spear, and red cloth.[141]	

[141] As noted in the dialogue, the spirit asked for a penalty-payment of a spear (*gayáng*), and red cloth (*kondíman*). This is very interesting in that the Pinatubo Negritos do not use spears today in any other way. However, my oldest informants state that a few spears, as well as shields (*kaláhag*) were used by the pygmies during Spanish times. In contrast, spears have been, and are still, widely utilized by the Sambal for hunting, and other purposes.

The spear that is referred to in this curing-séance is wholly ceremonial in use. The handle is made of bamboo, about one and a half meters long, and the point of the outer hard wood of palms. One internode of a large bamboo is filled with sand and the spear is tied to this internode by means of a strip of red cloth. The gift is hung in the corner of the dwelling. The nature of these gifts, as well as the fact that the coastal Sambal also practice séances for curing the sick, would suggest that the Negritos borrowed this custom from the Sambal.

Q. *Ay numagawá' wadí bay-ín ay mamaka-hámpat kay na?*	If these will be given, will you let him become well?	other séances, the medium might use medicinal plants, and/or destroy the spirit causing the sickness.
A. *Aw-o!*	Yes! (emphatic)	

The behavior of the medium at the completion of this curing-séance was similar to others whom I have seen. Her eyes opened, and in a few minutes she was involved in normal activities, in this instance, grinding corn. I was unable to follow up this case, but according to my informants, the gifts were prepared as directed by the spirit and the man became well.

Other "theories of disease".—The Pinatubo pygmies also believe that misconduct on the part of an individual, or breaking a tabu, will cause sickness. It is very interesting to note that sickness which has resulted from misconduct is almost always due to a Negrito having violated the property rights of another Negrito, and social controls are largely the product of magico-religious sanctions and not political organization and strong leadership. This is illustrated in the following examples:

Tuhó' Balintay, a well known Negrito "leader" who lived at Ugík, died in 1947 while I was working at Villar. Governor Anonas, who was present, stated that the cause was probably diptheria, but it was the opinion of the Negritos with whom I talked, that he had died as a result of violating the property rights of his nephew. Shortly before his illness, and subsequent death, Tuhó, had taken camotes from the clearing of his nephew without permission, and afterwards had made no attempt to pay his nephew. This, they believed, was the initial cause of the sickness, and later evil spirits had intervened to seal his doom.

If a Negrito even accidentally destroys the property of another Negrito, he must give a gift called *ihíh* or *langgád* to the owner of the property, or the owner (!) will become ill. When no gift is forwarded, the person accidentally destroying the property of another will be held responsible, possibly with violent consequences, for any subsequent sickness which the owner of the property might incur.

In 1946, Jacinto Balintay accidentally burned a blanket which he had borrowed from his first cousin. He immediately gave a chicken—something having blood—to his cousin as the *ihíh.*

I witnessed a funeral in 1947 for a woman who had died in childbirth and who, I learned, had been *lábüng-lábüng,* that is, "spirit impregnated," for having violated a tabu. The woman had washed some clothes and had forgotten and left them on the ground after dark. Under these circumstances, her husband

or a male relative should have gathered the clothes, but she had done so and had been impregnated by the evil spirit *gomóhaw*. Consequently, the "spirit baby" was too large for delivery. This belief is also held by the lowland Sambal and as washing clothing is not a typical Negrito activity, it is possibly a recently borrowed belief.

The Pinatubo Negrito is not wholly unaware of the somatic causes of sickness, as he knows, for example, that a broken leg is the result of a broken bone, and he treats the break pragmatically. However, as we have noted, a spirit might have originally arranged environmental conditions so that the Negrito would break his leg. Sympathy for illness and death is somewhat dulled by this attitude. A Negrito will remark about the death of a person that it was "his misconduct" (a personal problem of the relationships between an individual and the spirits and supernatural forces), and a death cannot always be prevented by human actions even with the aid of the strongest spirit-helpers and medicines. Nevertheless, great concern is shown when a person is seriously ill, and mediums will be employed constantly, markedly interrupting ordinary daily life, until the person becomes well or dies. In the case of Tuhó', described above, everything possible was done. Séances were held, medicines administered, etc., it was simply "foolishness" on Tuhó's part that had led to his death. Moreover, his nephew from whom the camotes were taken showed the greatest concern.

Why does the Pinatubo Negrito utilize so many medicinal plants which would indicate a rather realistic and somatic attitude towards the causes of sickness and disease while we have shown that his attitude is thoroughly magico-religious? I have noted how the Pinatubo pygmies will abandon a dwelling in which there is frequent sickness and I have been told by many informants that it was the custom in the past to abandon the sick person because of the great fear of sickness and spirits (particularly during epidemics). This latter behavior is not consistent with the presence among the pygmies of the curing-séance which demands intimate association with the patient and the use of many medicinal plants.[142]

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[142] One informant specifically noted that it was valuable for every person to know medicinal plants, as well as to possess powerful personal spirits, due to the fact that an individual might be abondoned by the group, and even by his immediate family. He emphasized the point that this was a "bad custom."

In the first place, the Negritos make no attempt to explain or justify their "theories of disease" in a systematic and logical manner. There are few, if any, Negritos who would challenge traditional beliefs no matter how contradictory the beliefs might be. Moreover, the causative explanations, as well as the methods in which the sickness is treated, depend upon a number of factors: (1) the type and seriousness of the sickness, for example, the Negritos do not normally explain skin diseases as being caused by the spirits, rather it is the common belief that dermatosis is inherited, but if any sickness is serious, the spirits are always involved, and (2) the presence, or absence, of traditional explanations for sicknesses. For example, the Negrito is greatly concerned with thunder and "thunder attacks" and has elaborate explanations, preventions, and cures for this condition (discussed below as *timbí'*), but there is little concern with, and no explanations for, an uncomplicated "common cold."

Many traditional explanations are utilized by the Pinatubo Negrito, which though now a part of their behavior, have obviously had their origins in very different "theories of disease." In other words, diverse historical forces have formed the present complex attitudes of the Pinatubo Negrito towards sickness, its cause and cure.

Discussion, by use, of the medicinal plants.—Other medicinal practices and beliefs will be illustrated in the following enumeration of medicinal plants. As we have noted, the arrangement of these medicinal plants is by conceptual categories of sicknesses established by the Pinatubo pygmies and not according to Western medical nomenclature. Their "theories of diseases" establish sicknesses which are not found in Western ideology; however, where possible, modern medical explanations of their medicinal terms will be included.

Alín-alín—"*hernia*"

Ditá'. Alstonia scholaris (Linn.) R. Br.

The sap obtained from the trunk of this tree is rubbed on the groin. This plant name is found in Tagalog, Bisaya, and in many other Philippine dialects.

baliktád—"dermatosis"[143]

Kalánat. Artocarpus blancoi (Elm.) Merr.

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[143] The Pinatubo pygmies also employ six specific terms to define various types of skin diseases: *alipúnga*, "athlete's foot"; *budúg*, "body scabies"; *gulgúl*, "head scabies"; *búkah-búkah*, "ring worm"; *labáng*, "depigmented and whitish skin areas"; and *imá'*, "fungi on the scrotum and pubic areas."

The sap from this tree, which is quite similar to the true breadfruit, is rubbed on areas of the body having any type of skin disease (see Plate 10, fig. 2).

Hamúyaw or *tanIgtíg. Gmelina philippinensis* Cham.

The fruit of this plant is warmed over the fire, and the juice from the fruit is applied to athlete's foot. According to Merrill, the Tagalog call this plant *alipúnga,* "athlete's foot," which would also indicate that the plant had the same use among the Tagalog population.

Íkoy-tawnáhan. Aneilema malabaricum (Linn.) Merr.

The leaves of this herb, descriptively called the "tail of the eel," are heated and then rubbed on areas of the body having a fungus infection.

Táü'-táü'. Aglaonema oblongifolium (Roxb.) Kunth.

This herb is squeezed to obtain a juice which is rubbed on areas of the body having skin scale. The plant name, *táü'-táü',* is the reduplicated name for the domesticated taro, and moreover, this plant belongs to the same family, Araceae.

Tatabakó or *aymála. Clerodendron* sp.

The leaves of this bush are pounded to obtain a juice which is poured over areas of the body infected with skin diseases. No related terms were found in Merrill for *aymála.*

Baók—"goiter"

Pupúl-ok or papatupát. Pterocaulon sp.

The dried leaves of this plant are rolled with tobacco, and smoked for a goiter. No cognates found or derivations obtained, but the construction of both of the plant names would indicate that they are locally coined terms.

Bayá'—"body swelling" (beri-beri)

Alyabón. Blumea balsamifera (Linn.) DC.

The leaves of this shrub are placed in a pot of water which is provided with a cover to avoid evaporation and the water is then brought to a boil. The steaming pot is placed with the patient under a blanket or some type of covering. A small hole is opened in the cover of the pot allowing the steam to escape and smudge, *huób,* the entire body of the sick person.

Guerrero notes that this plant is used in aromatic baths for rheumatism.[144]

Támbal-bayá' or *tres-maría. Adenia zucca* (Blco.) Merr.

The stem of this endemic vine is pounded and then boiled in water. The concoction is then used to bathe swollen parts of the body. One of the plant names is descriptive meaning "medicine for a swollen body," and the other is Spanish in derivation.

Búwa'—"prolapsus uteri"

Batlág or *támbal-búwa'. Strychnos multiflora* Benth.

Old women—this condition, according to the Negritos, is usually found in the older women—merely chew the bitter roots of this endemic vine for *búwa'*. The Pinatubo pygmies also call this protrusion, *boláhing*. The plant name *batlág* appears in one other contrast; *batlág-lawák, Desmodium heterocarpum* (Linn.) DC, and *Indigofera hirsuta* Linn., meaning the "*batlág* of the grass fields." These two plants have no use. No cognates were found for the specific term, *batlág*, but *támbal-búwa'* is a local, descriptive term.

Kúko'—"cough"

Anópo. Conocephalus sp.

Pamikíwün-mantŭg. Mucuna nigricans (Lour.) Steud.

Tútub-úlo. Illigera luzonensis (Presl) Merr.

The watery sap obtained from the stems of the above three vines is ingested twice daily, in the mornings and in the evenings, for a bad cough. *Alyáwa', Oreocnide trinervis* (Wedd.) Miq., a tree, also yields a watery sap which is used in the same manner and for the same purpose.

Diwal-ák. Osbeckia chinensis Linn.

The roots of this plant are merely chewed and the saliva is swallowed for coughing.

Kaompáy. Homalomena philippinensis Engl.

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[144] Guerrero, L. M. Medicinal uses of Philippine plants. Manila, Bureau of Forestry, Bull. 22 3 (1921) 244. As Guerrero was primarily interested in the potential medicinal values of Philippine plants, he did not distinguish which Philippine ethnic group used the plant, or in many cases the method of use. Consequently, his work has limited value for ethnological purposes.

A necklace is made from the stem of this herb and worn for a very bad cough. This is a common usage when evil spirits are believed to have caused the condition. Sometimes the stem is soaked in water and the brew ingested for coughing. This plant is called *alupáyi* by some Tagalog groups.

Hamát-bakí'. Piper interruptum Opiz.

The young leaves of this endemic vine are warmed and then rubbed on the neck for coughing. This plant name is descriptive meaning the "betel leaf of the monkey." The plant name, *hamát-bakólaw,* which has the same meaning, is also heard for this vine.

Talyó'. Pittosporum pentandrum (Blco.) Merr.

The bark of this endemic tree is merely tied around the neck, or woven into a necklace, and worn for coughing and headaches.

Uyóng. Miscanthus floribundulus (Labill.) Warb.

The shoots of this cane, the stems of which are commonly used for arrow shafts, are boiled in water and the brew is ingested for coughing.

Pupúl-ok or *papatupát. Pterocaulon* sp.

The Negritos chew and swallow the roots of this plant for coughing.

Kuyapúh—"boils" (*kamudó'* are boils (?) on the upper part of the body, particularly, the shoulders)

Búboh. Litsea sp.
Dalúnot. Pipturus arborescens (Link.) C. B. Rob.

The dried bark of the above two trees is scraped to obtain a powder which is applied to boils.

Kalót. Dioscorea hispida Dennst.

A paste is obtained by scraping the raw, poisonous tuber of this vine and is placed on boils and ulcers.

Kadáyum-dagí. Bidens leucorrhiza (Lour.) DC.

The leaves of this herb are heated, and then applied as a poultice to boils. This is a common medicinal practice among other Non-Christian groups with whom I have worked. The local name means the "rat's needle." *Cosmos caudatus* HBK., a plant of American origin, has the same name and use. These two plants look somewhat alike, and belong to the same plant family, Compositae.

Danukó'. Clerodendron minahassae Teysm. and Binn.

The leaves of this plant are warmed over the fire, rubbed with salt, and then plastered on boils. As is the case with most Philippine people, the Pinatubo pygmies ascribe considerable medicinal value to salt. Salt is, in fact, a highly prized item among the deeper Negritos, for it can only be obtained with considerable difficulty from the coastal people. No cognates were found for this plant name.

Gatí'—Nodular manifestations appearing on the upper parts of the body. When ripe, the *gatí'* bursts and if the condition is recurrent, it is called *buhá* (probably a tuberculous condition).

Támbal-gatí'. Erycibe sp.

The stem of this vine is scraped and the shavings placed in a bamboo tube and boiled. The brew is used to wash the erruptions.

Dawíyan—"diseases of the ear"

Káyum-dalága. Mussaenda philippica A. Rich.

The large, expanded, white calyx of this tree is simply inserted into the ear(s) when there is a discharge, or when hearing is poor. This plant name means the "maiden's tree," and appears in Tagalog as *káhoy-dalága* which has the same meaning.

Banáw-babái. Neonauclea reticulata (Havil.) Merr.

The whole leaf of this tree is placed in the ear(s) when there is a discharge, or the ear(s) aches. For the same reason, the pygmies also burn the hair of the Malay civet and then insert the ashes in their ears.

Dikdík—"inflamed eyes"

Dalína. Phaeanthus sp.

The bark of this endemic vine is scraped, the shavings placed in a package made of banana leaves, and then heated. After the package has cooled, it is squeezed and the juice produced dripped into the inflamed eyes.

Dikdík is commonly believed to be caused by spirits. Once at Tukó', Zambales, I was trying to buy a beautiful fighting bolo from an old man, but he absolutely refused to sell, stating that it had been a gift to a spirit and that his eyes would become inflamed, if he disposed of it.

This vine is also called *hagód* by some of the Pinatubo pygmies and Merrill notes that *Phaeanthus ebracteolatus* (Presl.) Merr., is called *dalínas* in Tagalog.

Dída'—"sore eyes"

Pakó'-anáto. Lastrea leucolepis Presl.

The fronds of this fern are crushed to obtain a juice which is used as an eyewash. This is only one of a sizable number of ferns which are called the "spirit's fern."

Young bamboo shoots, the *pulyó'*, are also a common medicine for sore eyes. The ends of the shoots are softened by striking them against a hard object and then are rubbed on the edges of the eyes.

Dinánan-ángin—A sickness which suddenly seizes a person and which causes a severe stomach-ache and cramps. The Negritos believe that this illness comes with the "wind"; hence, *ángin.*

Kalibubút-mantűg. Tabernaemontana cumingiana A. DC.

The leaves of this small tree are pounded, heated, and then plastered on the navel, *pűhIl,* and on the small of the back.

Tübóy. Ficus nota (Blco.) Merr.

The young leaves of this wild fig are rubbed with salt and then applied as a poultice to the navel, the back, and waist.

Hakítbúkot.—"uncomplicated backache"

Bubúlon. Ficus caulocarpa (Miq.) Miq.

The bark of this tree is stripped and then tied around the waist for a backache.

Sínko-sínko. Polanisia icosandra (Linn.) W. and A.

The leaves of this common weed are pounded, sprinkled with salt, and then rubbed on the back where it aches. This plant name is probably derived from the Spanish term for "five," *cinco,* for this weed has five leaflets in a single leaf.

Undáyon-pag-óng. Tinospora reticulata Miers.

The roots of this vine are merely tied around the waist for a backache.

Hakíttatiyán—"abdominal pains," the so-called "stomach-ache"

Agláw. Premna odorata Blco.

The flowers of this tree are boiled in water and the brew is ingested for abdominal pains. According to Merrill, this plant

is called *aagau* in Tagalog, *abgao* in Panay Bisaya, *agdao* in Pampanga, and *alagao* in Ilokano.

Banabáh. Lagerstroemia speciosa (Linn.) Pers.

Shavings from the bark of this tree are boiled in water and the decoction ingested for a stomach-ache.

Dúhat or *lumbóy. Syzygium cumini* Skeels

The bark of this tree is also boiled in water and the brew is ingested for abdominal pains.

Damón. Tylophora brevipes (Turcz.) F.-Vill.

The fragrant roots of this plant are chewed and then swallowed for indigestion. This plant name is probably related to *lamón,* "grass," in Sambal, and *damó,* "grass," in Tagalog.

Tatabakó' or *aymála. Clerodendron* sp.

The roots of this plant are boiled and the brew drunk for stomach pains. *Gomphostemna philippinarum* Benth., is also called *aymála.*

Cloth bands, called *tatampálin,* are tied tightly around one or both of the upper arms as a protection against and a cure for stomach-aches. The Negritos state that these arm bands: "Draw the ache up and out of the body." The men and women who have once used these bands continue to do so for the rest of their lives, for it is believed that if the bands are removed, that the stomach-ache will return. Some of the pygmies have deep scar troughs produced by having worn these tight bands for many years.

Hakitúlo—"simple headache"

The method usually employed by the Negritos in treating a simple headache is to place a leaf against the forehead and/or temples. Before application, the leaves may be rubbed with salt, and in some instances, pounded. The use of leaves as a poultice, *tápal,* is a widespread practice in the Philippines.

The leaves of the following plants are believed to have a medicinal value, if used in the manner described above:

Anónang. Cordia dichotoma Forst.
Áum-áum. Melanolepis multiglandulosa (Reinw.) Reichb f. and Zoll.
Awíli'. Ficus hauili Blco.
Banabáh. Lagerstroemia speciosa (Linn.) Persl.
Busíl-ak. Capparis horrida Linn.

Duglóh. Mucuna sericophylla Perk.
Magbabaníg. Micromelum minutum (Forst. f.) Seem.
Pulínin. Hymenodictyon excelsum (Roxb.) Wall.
Sínko-sínko. Polanisia icosandra (Linn.) W. and A.

Headaches are also treated in a number of other ways.

Ingwál. Flagellaria indica Linn.

The ashes obtained by burning the fruit of this vine are mixed with water and the brew ingested for headaches.

Panoypóy. Kolowratia elegans Presl.

The young roots of this plant are merely soaked in water and the water drunk for headaches. The pygmies state that the water becomes cool through this action.

Tagapháng. Gymnosporia spinosa (Blco.) Merr. and Rolfe.

The leaves of this tree are boiled in water and the mixture ingested for headaches.

Talyó'. Pittosporum pentandrum (Blco.) Merr.

The bark of this tree is merely worn as a necklace for headaches.

Tambák. Alpinia haenkei Presl.

The stem of this plant is cut into sections, mixed and cooked with any food, and eaten for headaches. The stem may also be soaked in water and the brew ingested for the same purpose.

Tútub-úlo. Illigera luzonensis (Presl) Merr.

The watery sap obtained from the stem of this vine is drunk for headaches.

Hildít—The symptoms of this sickness are aching, and enlarged veins in the extremities, particularly, the legs (probably including a varicose condition).

Butót. Dioscorea filiformis Blm.

In addition to its use for food, the tuber of this wild yam is believed to be a very effective medicine for *hildít*. The tuber is merely roasted or boiled and eaten as it would be for food.

Malabawúgan-malháy. Pericampylus glaucus (Lam.) Merr.

The whole stem of this vine is tied around both legs, just below the knees, for this illness. This plant name means "like the large *bawúgan*," (*Dioscorea esculenta*).

Taíb. Saccharum spontaneum Linn. subsp. *indicum* Hack.
Yabót. Imperata exaltata Brongn.

The young leaves of the above two grasses are tied around both upper arms and/or both legs just below the knees, for *hildít.*

Hip-ón or *úngoy*—the "common cold" (úngoy also means "mucus")
Aháwa-nin-tItíak." Phaleria perrottetiana (Decne.) F.-Vill.

The bark of this plant is woven into a necklace and worn for colds or coughing. This plant is descriptively called the "wife of the *tItíak.*" This latter plant has been identified as *Wikstroemia meyeniana* Warb.

Alyáwa. Oreocnide trinervis (Wedd.) Miq.

The water obtained from the stem of this vine is merely ingested for the common cold.

Aplón-kiyáng. Melothria sp.

The leaves of this plant are crushed to obtain a juice which is mixed with water and ingested. This local name means the "gall bladder of the *kiyáng.*" This bird, *kiyáng,* popularly called the coleto (*Sarcops calvus calvus*), is very common in the Pinatubo area.

Kalangyá'. Abrus sp.

Necklaces are made out of sliced portions of the stem of this plant and worn when a Negrito has a cold. No cognates were found.

Dalakít. Amomum sp.

The fruit of this *Zingiberacea,* important as a food, is also eaten as a medicine for a common cold.

Gulunggút. Thunbergia fragrans Roxb.

The leaves of this plant are crushed and then smelled for a cold, or the stem and leaves are made into a necklace and worn for the same purpose. No cognates were found.

TItíak. Wikstroemia meyeniana Warb.

A necklace is made out of the bark of this shrub, and is worn for colds. Though no derivation was found, the construction of this plant name would indicate that it was, at one time, coined by the pygmies.

Húgat—"*wound*" or "cut"

Amúkaw. Musa errans (Blco.) Teodoro

The young, unfolded leaves of this wild banana are sometimes used as a covering, a "bandage," for large wounds. However, many of the pygmies make no attempt to cover even the largest wounds and ulcers.

Banhíkol. Piper retrofractum Vahl.

The roots of this vine are scraped to get a powder which is sprinkled on wounds and cuts.

Buláwín-mantŭ́g. Vitex parviflora Juss.

The Pinatubo pygmies scrape the bark of this tree to obtain a powder which is used as a medicant for wounds. According to Merrill, this plant is called *bulauen* in Pangasinan.

Kópang. Parkia javanica (Lam.) Merr.

The dried seeds of this large tree are pounded and the powder obtained is applied to wounds and ulcers.

Dikót-ni-tulisán. Leucas lavandulifolia Sm.

The leaves of this common weed are squeezed and the juice that is obtained is placed on wounds. This plant name means the "grass of the bandit." Some of the Pinatubo Negrito groups also call this weed, *támbal-tulisán.*

Duglóh. Mucuna sericophylla Perk.

A section is cut from the stem of this endemic vine and the watery sap within the stem is blown onto the wound to stop the flow of blood. When bleeding is very excessive, earth packs are utilized. A nose bleed is stopped with a nose plug made of leaves, or of cloth.

Hawáan-láwak. Euphorbia rachelii H. and H.

The juice obtained by crushing the stem and leaves of this herb (accidentally introduced ?) is applied to wounds. As indicated by the local name, the Pinatubo pygmies relate this plant to *hawáan, Euphorbia hirta* Linn. The term *láwak* means an "open" grass-covered field," and differentiates the habitat of one of these plants from the other.

Imamáli or *páting. Leea manillensis* Walp.

The bark of this tree is pounded and the powder obtained used as a vulnerary. According to Merrill, this plant is called

amamáli in Cebu Bisaya, and *mali-mali* in Tagalog and Pampangan.

Pakbŭt. Antrophyum sessilifolium (Cav.) Spr.

The fronds of this fern are pounded to obtain a juice for wounds. No cognates were found.

Tayungtúng. Melastoma polyanthum Blm.

A powder is obtained by pounding the dried leaves of this shrub and this is used as a vulnerary. No cognates were found.

Lamíg—"malaria." The Negritos do not recognize malaria *per se*, nor do they realize that the mosquito is the agent, but merely describe this sickness as *lamíg*, "coldness," denoting the chills which accompany a malarial infection.

Adíw. Premna sp.

The leaves of this plant are pounded and then rubbed on the back to remove the aching which follows the chills. This plant is called *aríw* in Botolan-Sambal and, according to Merrill, *adiyo* in Tagalog.

Alahíih. Aphananthe philippinensis Planch.

The dried branches of this tree are burned to smudge the body for *lamíg*. This tree is called *alasíis* in Botolan-Sambal and Tagalog.

Balángaw. Oroxylum indicum (Linn.) Vent.

The bark of this tree is crushed to obtain a juice which is rubbed on the back for the aching accompanying malaria.

Ditá'. Alstonia scholaris (Linn.) R. Br.

The bark of this tree is cut into small pieces and boiled in water. The decoction is ingested for malaria and fevers. This plant is widely utilized in the Philippines among the provincial and mountain people for this same purpose.[145]

Butót. Dioscorea filiformis Blm.

The tuber of this wild yam, important as a food, is merely eaten with the peeling for malaria, or the broth, *habáw*, obtained when boiling the tuber, is drunk for the same purpose.

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[145] Cf., Santos, José K. Histological study of the bark of *Alstonia scholaris*. Philip. Jour. Sci. 31 (1926) 415–429.

ikoy-bakf'. Heliotropium indicum Linn.

The leaves of this common weed are merely rubbed on the back for the aching which accompanies malaria. This local plant name means the "tail of the rat," and in Tagalog, it is called *buntót-león,* the "tail of the lion." The local names are obviously suggested by the form of the flower stalk.

Lagonháy. Erigeron sumatrensis Retz.

The whole plant is placed under the sleeping mat, or under the body of a Negrito suffering from malaria. No cognates were found.

Pakó'-aníto. Lastrea leucolepis Presl.
Cyclosorus dentatus (Forsk.) Ching
Davallia denticulata (Burm.) Mett.
Cheilanthes tenuifolia (Burm.) Sw.
Pityrogramma calomelanos (L.) Link.

These five species of fern, called the "fern of the spirit," are used in two ways as a medicine for *lamíg.* The ferns may simply be placed with the sick person, or the fronds may be pounded and rubbed on the back. When sleeping mats are used, the plants may be placed under the mat.

Pakó-pakó'. Angiopteris palmiformis (Cav.) C. Chr.

The Negrito sleeps on the fronds of this huge fern when suffering from malaria.

TalIktík. Andropogon tortilis (Presl.) Merr.

The leaves of this grass are boiled in water and the brew is used to bathe the entire body of a person having *lamíg.*

TaludáyIn. Athyrium blumei (Bergsm.) Copel.

The fronds of this fern are pounded and rubbed on the back for *lamíg.* No cognates were found.

Utót-kilát. Paederia foetida Linn.
Paederia tomentosa Blm.

The leaves of these herbaceous vines are rubbed on the back for malaria. It is amusing to note that both the latin binomial and the Negrito name denote the odor which the plant has; *utót,* "break-wind," and *kilát,* "thunder."

Lignát—a "relapse" following any kind of illness.

Kalibutbút-mantúg. Tabernaemontana cumingiana A. DC.

The leaves of this tree are mixed with the powdered husk of rice, and fried. The medicant is then rubbed over the entire body of a person who has suffered a relapse. This is unquestionably a recently introduced medical practice as indicated by the method of use.

Manaká'dáya or *managílid*—"blood in the excreta" (dysentery, etc.)

Agláw. Premna odorata Blco.

The flowers of this tree are boiled in water and the decoction is ingested for dysentery.

Dúhat or *lumbóy. Syzygium cumini* (Linn.) Skeels

A decoction is made by boiling the bark of this tree in water. The brew of the water and bark is then mixed with the fruit juice of the *katóh, Sandoricum koetjape,* or the *súha', Citrus maxima,* and ingested for *managílid.* The latter two plants are of prehistoric introduction.

Hüláng. Micromelum inodorum (Blco.) Tanaka

The roots of this plant are chewed and the saliva swallowed when a Negrito is becoming too thin, or has blood in his excreta.

Hábot-báboy. Bulbostylis barbata (Rottb.) Kunth.

All of this small grass, which is called "pig's hair," is boiled in water and the brew ingested for dysentery.

Pawhápi. Anisoptera thurifera (Blco.) Blm.

The fruit of this large tree is boiled in water and the decoction drunk for dysentery. This tree is called *paluhápi* in Botolan-Sambal, and *palosapis* in Iloko, Pangasinan, and Tagalog.

Tanyúong. Vanieria cochinchinensis Lour.

The roots of this vine are first placed in water to soften. Then, they are chewed and the saliva swallowed for dysentery. No cognates were found.

Tibátib. Rhaphidophora merrillii Engl.

The roots of this endemic, herbaceous vine are pounded until they drip with juice and they are then tied around the waist. According to Merrill, this plant is called *tabátib* in Tagalog.

Manduládáya—"spitting blood" (denoting all conditions of hemoptysis, viz., tuberculosis)

Anáw. Livistona sp.

The young shoots of this palm are eaten when a Negrito is spitting blood, is consumptive, and has all of the symptoms which we would call tuberculosis.

Diwal-ák. Osbeckia chinensis Linn.

The roots of this shrub are chewed and the saliva swallowed for *mandulá'-dáya* (from *dulá'*, "spittle," and *dáya*, "blood").

PánaguríngIn or *pánagulíngIn. Cratoxylon celebicum* Blm.

The young leaves of this tree are chewed and the juice swallowed for tuberculosis.

Manharáan (*Sp.*)—"scanty and irregular menstruation."

The following plants are used as an emmenagogue. As a group the Negrito women deny that they use abortives, but a few informants stated that some of the women use these plants for this purpose. The pygmies recognize the relationship between the menstrual periods and impregnation.

Aladíad or *kalaháka. Tetracera scandens* (Linn.) Merr.

The stem of this vine is cut in order to obtain the water which is then ingested by the women to promote the menstrual discharge.

Támbal-dáya. Vernonia cinerea (Linn.) Less.

The whole plant is rubbed on the waist of the women as an emmenagogue. This local descriptive plant name means the "blood medicine."

Daráya'. Andropogon micranthus Kunth.

This grass is merely rubbed on the waist to stimulate the menstrual flow. One woman specifically noted that this plant was used as an abortive. Others, as we have noted, do not sympathize with or admit the use of plants for this purpose. No cognates were found.

Dúhat or *lumbóy. Syzygium cumini* (Linn.) Skeels

If the menstruation is weak, or stops too soon, a decoction is ingested which is made from the boiled bark of this tree.

Katíng—"ulcer"

Amúkaw. Musa errans (Blco.) Teodoro

The young leaf of this wild banana is sometimes used as a covering for ulcers.

Bangkál. Nauclea orientalis Linn.

The bark of this tree is pounded to obtain a powder which is applied to ulcers.

Kalót. Dioscorea hispida Dennst.

A paste is obtained by scraping the meat of this poisonous wild tuber which is then spread on ulcers.

Kópang. Parkia javanica (Lam.) Merr.

The peelings and seeds of the fruit of this large tree are pounded to obtain a vulenary powder for ulcers.

Danukó'. Clerodendron minahassae Teysm. and Binn.

The leaves of this plant are first heated and crushed. The juice extracted is then mixed with coconut oil and applied to ulcers. According to Merrill, this plant is called *danata* in Samar-Leyte Bisaya, and *ku-ku* in Sulu.

Íkoy-tawnáhan. Aneilema nudiflorum R. Br.

A whole of this herb is warmed over the fire, and then crushed to obtain a juice. This juice, according to informants, is used to wash ulcerous wounds.

Tayungtúng. Melastoma polyanthum Blm.

The leaves of this shrub are pounded, wrapped in a banana leaf, and heated over the fire. Then, the package is squeezed to obtain a juice for washing ulcers.

Nakayát.—"bitten," that is, poisonous or irritating stings of insects and bites of animals (excluding snake bites)

Alahíih. Aphananthe philippinensis Planch.

When a Negrito has been bitten by a mad dog, he burns the leaves of this tree, mixes the ashes with coconut oil, and rubs the mash on the wound.

Anáw. Livistona sp.

The leaves of this palm are burned and the ashes that are obtained are placed on the sting caused by spiders, centipedes, and other poisonous insects.

Balikwáh or *lúnah. Streptocaulon cumingii* (Turcz.) F.-Vill.

When bitten by an insect, the pygmies squeeze the juice from the stem of this vine onto the wound. No cognates were found.

Nanapó'—"pricked by the *napó'*," a fish with poisonous spines.

The napó',[146] a severe stinging scorpion fish, is common in the rivers on the western slopes of Mt. Pinatubo and was identified from specimens which I collected at Villar, Zambales, by Dr. Albert W. Herre as *Gymnapistes niger* Cuv. and Val. The Negrito frequently encounter this fish while diving.

Awíli'. Ficus hauili Blco.

The sap from a small branch of this tree is squeezed onto the wound caused by the spines of this fish.

Banayúyu. Antidesma ghaesembilla Gaertn.

The Negrito chews the leaves of this tree and spit the mash on the wound. According to Merrill, this plant is called *baniyúyo* in Tagalog.

Liúhin-lanín. Homonoia riparia Lour.

The leaves of this small tree, common along the banks of streams, are chewed and the mash is rubbed on the wound caused by the scorpion fish.

Napúol—"burned"

Páo'-mantüg or *páo'. Mangifera altissima* Blco.

The bark of the "wild mango" is pounded to obtain a juice which is applied to burns.

Yúpal-lúta'. Microsorium schneideri (Christ.) Copel.
Hemionitis arifolia (Burm.) Moore

The fronds of these two ground ferns (*lúta'*, "ground") are crushed to obtain a juice for burns. The Pinatubo Negritos also classify two other epiphytic ferns as *yúpal: pínoy-yúpal, Drynaria rigidula* (Sw.) Bedd., the "small *yúpal*," and *yúpal-mantüg, Drynaria quercifolia* (L.) J. Smith, the "true *yúpal*." No cognates were found for the plant name, *yúpal*.

Pahamá—"sun or heat exhaustion" (this term is corrupted from the Spanish, *pasma*)

Aladíad or *kalaháka. Tetracera scandens* (Linn.) Merr.

The water obtained from the stem of this vine is drunk for *pahamá*.

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[146] Scorpion fish which I collected at Polillo Island are called *nupó'* by the Dumagat, and *lupó'* by the Tagalog. *Cf.*, Herre, A. W., and A. F. Umali. English and local common names of Philippine fishes. Washington, Fish and Wildlife Service. Circular 14 (1948) 1–128.

Álob-álob. Bridelia stipularis (Linn.) Blm.

A powder is obtained by scraping the roots of this woody vine. The powder is mixed with water and then ingested for sun or heat exhaustion. The Negrito states that this condition will occur, if one works too hard in the clearing of land for planting, or if one is very hot, and is then caught in the rain.

Pakúwün—"paralysis"

Bünát. Derris elliptica (Roxb.) Benth.

Strips of bark from this woody vine, which we have seen is important as a fish poison, are tied around both upper arms and both legs just below the knees, when there is paralysis in these extremities.

Tagilílan—A condition in which there is a very sharp pain on either side of the body making it difficult to breathe. An appendicitis attack, pleurisy, etc., undoubtedly come under this conceptual category established by the Pinatubo pygmies.

Gihigíh. Ficus blepharostoma Warb.

The growing tips of this tree are pounded, mixed with salt, and the mash applied as a poultice to the side of the body.

Tübóy. Ficus nota (Blco.) Merr.

The leaf of this important tree is rubbed with salt and then plastered against the side of the body.

Támbal-tagilílan. Alocasia heterophylla (Presl.) Merr.

The leaf of this herb is merely applied as a poultice to the side of the body.

Taón—"An infant's disease of the peripheral nerves associated with heart disturbances, and hypertrophy of the ventricle" (defined by Dr. M. Basaca, Institute of Science and Technology, Manila).

The Pinatubo pygmies also define *taón* as an infant's sickness and recognize it when the child becomes very weak, and the body discolored (bluish).

Malaúbi. Aristolochia sp.

The roots of this vine are powdered by pounding, the powder mixed with the pounded gall bladder of the *biklát* (*Python reticulatus*), mother's milk, and then fed to the infant. Accord-

ing to Merrill, *Aristolochia tagala* Cham., is called *malaúbi* in Tagalog and in both dialects the plant name means "like the *úbi*" (*Dioscorea alata*).

One plant of American origin, *tüutűm*, *Hyptis suaveolens* Poir., and one plant of prehistoric introduction, *úngot-úngot*, *Momordica charantia* Linn., as we have noted, are also used to treat this disease.

tarangkáso—"cholera" (this term is corrupted from the Spanish)
Ingwál. Flagellaria indica Linn.

The fruit of this vine is burned, the ashes mixed with water, and the brew ingested.

tIbű'—"constipation"
Bangál. Sterculia foetida Linn.

The seeds of this tree are roasted and then eaten for a laxative, *purgáh* (Sp.).

Úngot. Cocos nucifera Linn.[147]

The water, *gatá'*, from the nut of this common palm is drunk in considerable portions to relieve constipation. The coconut palm is also called *ongót* in Ibanag.

timbí'—"a person who has been attacked by thunder"

The Pinatubo pygmies have great fear of thunder, *kílat* or *kudól* ("lightning" is called *kimát*), and what we characterize as a "lightning attack," they call a "thunder attack." These attacks are caused by the "one," that is, *kílat*, who makes the "noise." If a negrito breaks one of a number of specific *tabus*, a thunder attack is provoked; for example, carrying mixed things in a basket, such as sweet potatoes and squash (also a Sambal belief), picking head lice while it is thundering, teasing or playing with earthworms, laughing at sexual intercourse of either people or animals, and so forth. A supernatural, *tó-*

[147] A few groves of coconut palms, as well as some scattered trees, are found in the Pinatubo area. However, these palms appear only on the abandoned ranch sites of Americans and Sambal who have once lived in the Pinatubo area. This palm is not spontaneous in the Philippines and, insofar as I can discover, the Pinatubo pygmies have never planted it. *Cocos nucifera* should probably be discussed in the section dealing with introduced plants, for it is certainly not native to the Philippines. However, as there is considerable confusion as to its origin, and whether it reached the Archipelago wholly through the agency of man, or was naturally disseminated prior to the movement of man into the Philippines, it is included in this section dealing with native plants.

lan dían, reports these violations to *kílat* (it is amusing to note that the postwar Negritos commonly call thunder, "C. O.," that is, "commanding officer," which is a result of their guerrilla affiliation) and the thunder will punish the person. If the attack is "direct," the individual is *nilanhangán,* and will be killed or die. If the attack is "indirect," *timbí'* or *nalantíd,* the person may recover with the aid of a medium and by employing medicinal plants.

It is commonplace to hear "reports" from the Negritos to *tólan dían* telling of the misdeeds of people and asking for his forgiveness. This is particularly true during the months preceding the rainy season when there is constant daily thunder. A report to *tólan dían* which I heard an old woman give, shouting at the top of her voice, is set forth below to illustrate this activity:

Ači ya aw-anák ya namihahádi nin kuwát, uláng, kinhíl, yanká'!	These children, they have mixed the mushroom, shrimp, a banana, and the jackfruit! (a tabu)
Aynbáli ta agláy na nin omanín ya mamihahádi baytó	Nevermine, they will not mix those things again. (free transalation)

As an added precaution against thunder attacks, the Pinatubo pygmies employ a number of charms and magical devices. The most unusual of the charms used are ancient Neolithic stone tools, called *gúgot kílat,* "thunder teeth," which they have accidentally discovered.[148] According to the traditional beliefs of the pygmies, these are always found at the bases of trees

[148] While in Zambales among the Pinatubo Negritos, I saw only one stone used as a charm which was very probably a Neolithic implement. Others that I saw which were said to be "thunder teeth" were merely unusually shaped rocks. However, while with Professor Fred Eggan and Mr. and Mrs. Hans Steiner during December, 1949, in the two Negrito villages directly behind Fort Stotsenberg, Pampanga, I saw thirteen excellent stone tools of Neolithic origin which were being used by these Negritos as *ánting-ánting* charms, in the same manner as employed by the Pinatubo pygmies on the other side of Mt. Pinatubo. I was able to obtain eight of these stone implements which are now in the collection of the Philippine National Museum (*cf.* Plate 15). The Stotsenberg Negritos also believe that these stone tools are an effective medicine for the common cold. They are merely placed in the mouth momentarily, and the action repeated many times throughout the day, until the cold disappears.

The belief that Neolithic stone tools are "thunder teeth" or "lightning teeth" is widespread in the Philippines. (*Cf.*, Beyer, H. O. Outline review of Philippine archaeology by islands and provinces. Philip. Jour. Sci. 77 (1947) 219, 281, 311, 327, and in Borneo, p. 340.

which have been struck by "thunder," or in the intestines of animals which have been hit. These implements are highly prized by the pygmies, for they believe that if they are kept within the dwelling, "thunder" will not strike the house. In addition, the bones of monkeys are burned in the hearth of the dwelling during thunder storms and many dwellings have two pieces of interlocked bamboo set on the peak of the roof at both ends of the dwelling, as a protection against a thunder attack. This latter magical device is called *hinalhál* or *pangáw*.

When a person is believed to be *timbí'*, a number of plants are utilized by the "medicine-man," or by the medium, to speed the cure.

Imamáli. Leea manillensis Walp.

The leaves of this plant are pounded and then rubbed over the entire body, beginning at the feet, of the person who has been attacked by thunder. The body is rubbed progressively upwards to force the sickness out at the crown of the head.

As we have noted, a number of plants of American origin, as well as of prehistoric or historic introduction from other regions, are also used for this purpose, and in the same manner.

Talimádin. Acalypha angatensis Blco.

A branch from this tree is used to whip the entire body of a Negrito who is *timbí'*.

Tinúka'útan—"snake bit"

Kᵘwán-kᵘwán-báboy. Pollia sorzogonensis (E. Meyer) Steud.

The leaves of this herbaceous plant are crushed and then rubbed over the bite. This plant name means the "pig's *kᵘwán-kᵘwán.*" The Pinatubo pygmies also call two other plants by this generic term: *kuwán-kuwán-mantűg, Cyanotis moluccana* (Roxb) Merr., the "true *kuwán-kuwán,*' and *kuwán-kuwán-binágbag, Pollia thyrsiflora* (Blm.) Steud., the "*kuwán-kuwán* of the forest."

DalákIt. Amomum sp.

The young leaves of this plant are masticated and the mash rubbed on the bite.

Pínoy-níto'. Lygodium flexuosum (L.) Swartz.

The roots of this common fern-vine are chewed and the masticate spit onto the snake bite. As we have noted, *Lygodium circinnatum* (Burm.) Sw., is called *níto'- mantűg*, the

"true *níto'*," whereas, the above plant name means the "small *níto'*."

Táib. *Saccharum spontaneum* Linn. subsp. *indicum* Hack.

The young shoots of this very common grass are chewed, and the mash also spit onto the bite.

Túang-"toothache" (*túlang*, Bot.-Sbl.)

The roots of the following plants are boiled in water and the decoction used as a mouthwash for toothaches:

Alipungpúng. *Borreria articularis* (Linn. f.) F. N. Mill.
Hedyotis sp.
Bútang-bútang. *Merremia hastata* (Desr.) Hallier f.
Liúhin. *Ardisia pyramidalis* (Cav.) Pers.
Liúhin-laním. *Homonoia riparia* Lour.
Matán-uláng. *Breynia rhamnoides* (Retz.) Muell.-Arg.
Matán-uláng-ya-kíniw. *Phyllanthus* sp.
Tangkíko'. *Solanum cumingii* Dunal

A number of other plants are also used as medicines for toothaches.

DalapŭiyIn. *Loranthus philippensis* Cham. and Schlecht

The stem of this parasitic plant is scraped to obtain a powder which is then boiled in water and used as a mouthwash. No cognates were found.

Malauntún. *Loranthus haenkeanus* Presl.

The small branches of this vine are boiled in water and the decoction used as a mouthwash. This is a local, descriptive plant name.

Támbal-túang. *Oldenlandia diffusa* (Willd.) Roxb.
Oldenlandia corymbosa Linn.
Lindernia sp.

These three weeds are all called by the same descriptive name meaning "toothache medicine." The whole of each plant is merely boiled in water and the brew used as a mouthwash.

Útanbitúka—A stomach-ache caused by the presence in the intestine, *bitúka*, of a spirit of the snake, *útan*. This sickness can only be identified and removed by the medium.

Kuwán-kuwán-mantŭg. *Cyanotis moluccana* (Roxb.) Merr.

During a curing-séance, the medium places the whole of this herb in a bowl of water. Then with accompanying ritual, the

medium captures the snake spirit, transfers it to the bowl, and relieves the patient of the intense pain.

yükyük—An "enlarged abdomen" common among the Negrito children and probably due to parasitic infections, chronic malaria, malnutrition, beri-beri, etc. (called *balí'bi* in Bot.-Sbl.).

Apátot. Morinda bracteata Roxb.

The leaves of this tree are applied to the enlarged abdomens of children as a poultice (see Plate 10, fig. 1). According to Merrill, this plant is called *apatút* in Tagalog, and *apatút-a-bálang* in Iloko.

Banglít. Scleria scrobiculata Nees.

Negrito children eat the young tops and fruit of this sedge for *yükyük*. No cognates were found.

Pínoy-banglít. Scleria lithosperma (Linn.) Sw.

The young tops of this sedge are also eaten by the children for an enlarged stomach. As noted, the term *pínoy* means "fine" or "small"; therefore, this plant is the "small *banglít*." This is another instance in which the botanical classification system of the Pinatubo pygmies does incidentally show true floristic relationships.

Bukyót. Dioscorea bulbifera Linn.

A powder is obtained by scraping the axial fruit of this vine and the powder is rubbed on the abdomen. In general, this is considered to be the best of the medicines for an enlarged abdomen.

Pakbŭt. Microsorium longissimum (J. Sm.) Fee
Antrophyum sessilifolium (Cav.) Spr.

The fronds of either one of these two ferns are merely placed on the stomach and held in position with a cloth band.

MISCELLANEOUS USES OF MEDICINAL PLANTS

Appláy. Quisqualis indica Linn.

The fruit of this vine is eaten to kill intestinal worms. The short, white intestinal parasites are called *baktí'*, but the generic term for intestinal worms is *buwáti'* which also means "earthworm." No cognates were found for this plant name.

Balikwáh or *lúnah. Streptocaulon cumingii* (Turcz.) F.-Vill.

Old people tie the stem of this plant around their waists in order that "Their blood will become strong."

Bambán. Donax cannaeformis (Forst. f.) K. Schum.

The young shoots of this plant are sliced, placed in water, and soaked for at least one hour. The brew is then ingested to lower fevers. This plant is called *bambán, banbán,* or similar cognates, in many Philippine dialects and is a common place name throughout the Philippines.

Kʷwán-kʷwán-mantŭg. Cyanotis moluccana (Roxb.) Merr.

The dried leaves of this herb are pounded to obtain a powder which is rubbed on aching knees.

Dangláh. Vitex negundo Linn.

The leaves of this tree are applied as a poultice against the forehead and/or temples as a febrifuge.

Dulimán. Stenochlaena palustris (Burm.) Bedd.

The strong stem of this fern vine is tied around the waist, when there is aching in that area.

Dulít. Canarium sp.

The sap obtained from the trunk of this tree is mixed with a powder obtained by pounding the wild pepper—the latter is of American origin—and then rubbed on areas of the body which ache or are bruised.

Labtáng. Anamirta cocculus (Linn.) W. and A.

The stem of this vine is cut into small pieces, placed in the native "wines," and drunk to make the blood become strong. This is primarily an activity of the lowland Sambal and of some of the acculturated Negrito groups.

Mahoplák or *baliliwan. Grewia eriocarpa* Jesus

When a pygmy is "burning with fever," the bark of this small tree is tied around the waist.

Pamikíwŭn-mantŭg. Mucuna nigricans (Lour.) Steud.

The stem of this vine is pounded, and then tied around the waist for a "sick body."

Other medicinal practices.—As we have seen, medicines are generally derived from plants, however, a few other medicinal practices were encountered.

To remove a "style," *galŭtoy,* the Negritos "frighten it" with a bolo, or with a hot ember, by dashing the bolo or ember towards the eye. Necklaces, *úno,* worn for protection against the evil spirits and sicknesses in general are also made out of the long bones of monkeys (see Plate 15), the upper and lower jaws of the giant rat, *buŭt* (*Phoeomys pallidus*), and the tails of civets. All of these necklaces are commonly encountered. Deer horn is scrapped, the power placed in water, and the decoction ingested to lower fevers. The dung of the deer is dried, burned, and the ashes placed in water. This brew is drunk when a Negrito is suffering from sun exhaustion.

The bones of the large fruit bats are commonly made into a necklace, and worn when a Negrito has a cold. In addition, the hair of the fruit bats is burned and the ashes are rubbed on the neck. This is also believed to be an effective medicine for colds. The backbones of the larger snakes are strung as a necklace, and worn to protect the person from all types of sickness. As we have noted, the gall bladder of the python is considered to be a powerful medicine. One informant stated that the earthworm is burned, the ashes placed in water, and the decoction drunk for goiter. For dizziness, the pygmies burn the heads of lizards and eat the charcoal.

A brief comparison of medicinal practices in the Philippines.— Unfortunately, the detailed studies available of Philippine medicinal plants do not denote the group or groups which utilize a plant, or the specific methods of use. Nevertheless, even a cursory study of Guerrero's works [149] establishes the basic similarity of the medicinal practices of the Pinatubo Negritos with other Philippine non-Negrito people. Moreover, while pursuing studies of medicinal plants among the Polillo Dumagat, the Polillo Tagalog, and the Ipági Egongot, I was immediately struck by the fundamental likeness of the medicinal practices of these latter ethnic groups with the Pinatubo pygmies.

The following medicinal practices and beliefs found among the Pinatubo pygmies are also commonly encountered among many Philippine non-Negrito people: (1) the belief that spirits are the primary cause of sickness, (2) the curing-séance, (3) the use of saps for dermatosis, (4) the smudging of the body

[149] Guerrero, L. M. Medicinal uses of Philippine plants. Philippine Bureau of Forestry, Bull. 22 3 (1921) 149–246; Notes on Philippine medicinal plants, a mimeographed copy (1931) of the latter can be found in the Library of the College of Pharmacy, University of the Philippines.

for beri-beri, (5) ingestion of decoctions made from plants for coughing, (6) the use of pastes made from plants as poultices for boils, (7) washing of the eyes for eye diseases, (8) ingestion of brews made from the barks and roots of plants for abdominal disturbances, (9) the use of leaves as poultices for a simple headache, (10) powders made of pounded bark for wounds and cuts, (11) sleeping on specific plants for various kinds of sickness, (12) chewing roots for hemoptysis, (13) massaging the body with leaves or a mash made from plants, (14) the use of necklaces, arm and leg bands, for sickness in general, and (15) the use of charms, bezoar stones, etc., as a protection against sickness. There is an intrinsic likeness in the medicinal practices, and very probably in the medicinal plants utilized, throughout the Philippines.

It is possible that future comparative work will illuminate medicinal plants which are only utilized by Negrito groups, or that some of the plants utilized by the Pinatubo Negritos for medicinal purposes are unique, but I doubt whether any methods of use exist which are confined solely to the Pinatubo Negritos and/or to other pygmy groups.

PLANTS ASSOCIATED WITH PREGNANCY AND CHILDBIRTH

Bánag-mantŭg. Smilax bracteata Presl.

The roots of this vine are boiled in water and the brew is ingested by the mother immediately following the childbirth to stop the flow of blood, that is, the postpartum hemorrhage. According to Merrill, this plant is called *banág* in Iloko, Tagalog and Igorot, and *barág* in Pampangan.

Kalangyá'. Abrus precatorious Linn.

The pygmies boil the stem and leaves of this vine and then use the mixture to bathe a newly born infant, if it appears to be weak. It is believed that this will make the baby strong. The Tagalog and Pampangan call this plant *kasasága.*

Kawáyan-kilíng. Bambusa vulgaris Schrad.

The epidermis of this prehistorically introduced bamboo is boiled in water and the brew used to wash the body of a woman after childbirth to help her recover quickly.

Lakatán. Musa sapientum Linn.

The roots of this domesticated banana, also introduced, are boiled in water and the decoction drunk by women to stimulate pregnancy.

Lípah. Laportea meyeniana (Walp.) Warb.

The watery sap obtained from the trunk of this tree is ingested by the women to increase the supply of breast milk. According to Merrill, this tree is called *lipá* in Tagalog, *lopá* in Pangasinan, and *lupá* in Iloko.

Müngíw or *tagálbag. Clerodendron intermedium* Cham.

The leaves of this plant are crushed, placed in water, and the brew used to bathe very weak babies so that they will become strong. No cognates were found for the plant name, *müngíw.*

Payúyut. Dianella javanica (Blm.) Kunth.

The roots of this plant are boiled in water and the brew ingested by the mother following childbirth to help her become strong. No cognates were found for this plant name, but among the Polillo Dumagat and Tagalog groups *payúyut* is the name of a bird (*Motacilla c. caspica*) defining its peculiar perching actions, and *uyót* or *uyút* is a common term in many Philippine dialects for "sexual intercourse." There is some semantic relationship between the use of this plant and the widespread meaning for the word-base.

Tambó'. Phragmites vulgaris (Lam.) Trin.
Phragmites karka (Retz.) Trin.

Old men scrape the shoots of this grass and rub the shavings on the penis to obtain potency. The penis of the deer is roasted and eaten for the same purpose. This plant name appears in Tagalog and in other dialects.

Tü:k-tawnáhan. Commelina benghalensis Linn.

Pregnant Negrito women rub this whole plant to their waists to hasten and facilitate childbirth. The plant name means the "eel's ear."

PLANTS USED IN THE CONSTRUCTION OF DWELLINGS, AND OTHER STRUCTURES

The dwellings, *balí,* of the Pinatubo pygmies, as well as nonliving structures, are singularly crude, and are built of materials which are the handiest. There is no pattern of organization of the houses within a village, or is any type of environmental setting distinctly preferred. A village can spring up almost anywhere. Its location is largely determined by its proximity to good slopes for clearings and to the water sup-

ply. In general, the Negrito dwelling is built under pressure, a symbol of a restless spirit, as a shelter from the rains and hot sun providing a place to occasionally eat, sleep, and talk, but not to *settle!* The Negrito does not have the stable home life found among the surrounding people, for as we have noted, the men and boys frequently spend more time away from their "homes" and villages visiting, hunting, and fishing, than in the household. As would be expected, the Pinatubo pygmies make no attempt to beautify their dwellings, and pride in the methods of construction (similar to the attitudes displayed in making a bow and arrow) is wholly lacking. The semisedentary habits and values of these pygmies are dramatically reflected in the manner in which they build, and treat, all structures.

At present, the Pinatubo Negritos build eleven different structures, each having a specific name, and representing a number of distinct functions. The great variety of the dwellings and non-living structures is undoubtedly due to the relatively recent and intensive social contacts with the surrounding lowlanders, that is, to acculturation. In most areas of Pinatubo, the uniformity of styles which Reed noted [150] as occurring 45 years ago has disappeared. In the village of Kamastili, near Villar, a bewildering variety of dwellings meets the eye; however, in the deepest villages some uniformity still exists. Even the beliefs with regards to the construction of the dwellings are also typical of many lowland and non-Negrito people. A day or so before the dwelling is to be built, the Negritos place a tall cross at the site. If in the following nights dreams are interpreted as being bad, the chosen site is abandoned, but if the dreams are believed to be favorable, the family will proceed with the construction. If the dream is bad, but it is also dreamt that the cross moved in a specific direction, the house will be built in that direction. The ground is tested with the hand in the early morning at the prospective site of the dwelling. If the ground is warm, it would be disastrous to build there, for the future occupants of the dwelling would be frequently ill. If the ground is normally cool to the touch of the hand, the site is favorable. A number of informants also stated that the doorway should face to the East (this is also believed to be the best condition for the clearings), but in actual practice this custom is now ignored. Of course, the Negritos will never build their dwellings in areas believed to have evil spirits, or

[150] Reed, W. A. Negritos of Zambales. Manila (1904) 39.

near environmental objects believed to be the propetry, dwellings, etc., of spirits (*cf.* the discussion of "dangerous plants"), and this is, I believe, an older and more typical behavior of the Pinatubo pygmies. The other beliefs concerning construction which I have encountered, including those enumerated above, are more characteristic of sedentary people planning permanent living sites. The Negritos, even today, move and build on the spur of the moment and rarely have time for "testing" a favorable location.

Based upon the statements of the oldest informants, as well as upon Reed's observations, the dwellings and non-living structures of the Pinatubo pygmies can be classified into two groups; (1) older and more typical Negrito structures, and (2) relatively modern structures which are a product of recent outside influences and normally built by the more acculturated pygmies.

Three types of dwellings appear to be the older and more typical forms built by the Pinatubo pygmies the *hawóng,* the *tinangüb,* and the *dalupán.* The term *hawóng* really describes a "temporary structure," that is, one which is built for overnight stops while hunting, fishing, or travelling, and huts built adjacent to clearings to afford protection for the workers from the hot mid-day sun and strong rains, rather than a specific form of dwelling. Nevertheless, the *hawóng* never has a living platform and among most of the Pinatubo pygmy groups is usually constructed in the fashion of a "pup-tent"; a single ridge pole supported by forked limbs forming two sloping sides with one or both ends open (see Plate 11, fig. 1). Lean-to's, also called *hawóng,* are sometimes built along the rivers, but are not of specific or systematic construction such as those built by the Dumagat and Negrito groups on the east coast of Luzon (see Plate 12, fig. 1).

The *tinangüb* is the most usual type of dwelling encountered today (see Plate 12, fig. 2). This living structure has a peaked roof, but is walled vertically on three sides only. The fourth side is formed by one side of the roof sloping to the ground. A low sleeping platform is built within the half of the dwelling formed by the vertical walls and the fire-hearth is placed on the ground under the long sloping roof.

A unique dwelling built by the Pinatubo pygmies is the box-like *dalupán* (see Plate 11, fig. 3). This dwelling has no eaves, giving it a peculiar appearance and normally it is walled on three sides only. In conversations, Professor Beyer has noted that he saw this unusual type of living structure thirty

years ago among the Negrito groups directly behind Floridablanca, Pampanga (also in the Zambales Range), and further noted that he has not encountered this form of dwelling among other Philippine people.

Two non-living structures are commonly built by the Pinatubo pygmies, the *damáda'* and the *pála-pála,* which can also be considered typical. The former is a four posted shed with a single-sloping roof, and is used to house the bamboo forge. The *pála-pála* is a larger, flat-roofed shed built principally for ceremonial use, such as for a *talbŭng* or for a marriage, as well as at present for growing the climbing squashes, the beans, and *Momordica charantia* Linn. The use of the *pála-pála* as a trellis is confined wholly to the more acculturated pygmy groups.

Six other structures are now found among various Pinatubo pygmy groups which are of relatively recent, or very recent, introduction, and are basically similar to constructions found among the lowland Sambal. The *kinatáw* is a better built dwelling which has small, sloping roofs at the ends. The main roof beam is shorter than the overall length of the floor making these small roofs at the ends necessary. Among the Christian Sambal in the Municipality of Botolan, this dwelling is called *binubóng;* nevertheless, the Negritos' term for this structure is not unique, for *katáw,* the word-base of *kinatáw,* means "roof-rafter" in Botolan Sambal. Four types of dwellings are built in which the main roof beam is the same length as the floor: the *binalankás* (also meaning an "unfinished dwelling" from the word for "skeleton," *balangkás,* with an infix, *in,* meaning "like"); the *kinamadín* (from the wordbase *kamadín* which is a type of peaked-roof shed); the *kinamalíg* (from *kamalíg,* "granary," meaning "like the granary"); and the *timpó'*. In these four constructions, there are no small roofs at the ends of the dwellings, as the main roof beams are the same length as the floors, and all have four vertical walls. The *timpó'* is differentiated from the others in that the rafters on both slopes of the roof are made from continuous lengths of bamboo which are bent at the peak of the roof to form the rafters for both slopes. As built by the Negrito, all of these dwellings appear somewhat different from similar types built by the lowlanders. The house posts are shorter, the living platforms built closer to the ground, which in most cases makes a ladder unnecessary, and *Nipa fruticans* Thunb., called *sasá'* by the Negrito and the Sambal, a commonly used material for roofing and walling among

the lowland people, is not available to the Pinatubo pygmies. Moreover, the houses of the Negritos, regardless of the type of construction, are always more crudely built. One other type of shed, the *kamadín,* is also of recent introduction. This differs from the more typical forms of sheds, the *damáda'* and *pála-pála,* in having a peaked roof.

To facilitate the discussion of the materials used in the construction of dwellings and other structures, the plants used are set forth below under specific topics, and a few general remarks are made about each of the categories. In general, the types of plants used in the constructions will be governed by the availability, and differences in the flora within the Pinatubo area. Always there is a conscious selection of plants to be used, though, as in the case of house posts, a much larger number of plants are potentially useful.

Plants used for house posts and for framing.—If the large bamboo *kawáyan-mantűg, Bambusa spinosa* Blm., is available, the house posts, as well as the entire frame of the dwelling, may be made of this. However, in much of the Pinatubo area, this bamboo is difficult to obtain, and in the larger dwellings, the floor and wall supports, the rafters, and house posts, are preferably made of the straight trunks and limbs of small trees. Temporary shelters are most frequently built of branches, because of the advantages in constructing with forked limbs.

The following plants are used in making the house posts and frames of the dwellings by the Pinatubo Negritos, as well as by the lowland Sambal:[151]

Ágay-ágay. Bridelia glabrifolia (Muell.-Arg.) Merr.
Alawóy or *palukápok. Vernonia vidalii* Merr.
Amúngan. Siphonodon celastrineus Griff.
AmúngIn. Pygeum vulgare (Koehne) Merr.
AnabíyIn. Artocarpus cumingiana Trec.
Banáy-banáyIn. Radermachera pinnata (Blco.) Seem.

[151] The following nomenclature for parts of the house is applicable to any type, from the crudest temporary shelter to the better built dwellings, and all of the terms are similar to those employed by the lowland Sambal: *tadúk,* "house posts"; *tubó--tubó,* "the main house post supporting the ridge pole"; *pampuán,* "main roof beam of ridge pole"; *híkang,* "primary floor braces secured to the house posts"; *ayohólan,* "floor braces lying on the *híkang,* and to which the floor slats are tied"; *kayahíw,* "rafters"; *pandúng,* "vertical braces for the walling"; *hípit* or *balúti,* "horizontal wall braces"; *wanán,* "the tie-beam running horizontally around the dwelling at the top of the house posts, and providing a support for the lower end of the rafters."

Banáw-laláki. Neonauclea bartilingii (DC.) Merr.
Báyoy. Pterospermum obliguum Blco.
Bubóh. Litsea sp.
Karáll. Albízzia procera (Roxb.) Benth.
Kawáyan-kilíng. Bambusa vulgaris Schrad.
Kawáyan-mantűg. Bambusa spinosa Blume.
Hakít. Terminalia sp.
Malapatíngün. Tarenna incerta Koord. and Val.
Malauwíha or *buláwin-áho. Vitex turczraninowii* Merr.
Palikayúwün. Linociera ramiflora (Roxb.) Wall.
Pintúg. Artocarpus rubrovenia Warb.
Tipli'. Ficus odorata (Blco.) Merr.

Plants used for roofing.—The roofs of the Negrito dwellings are usually made of thatch, *atíp.* The thatch is obtained by cutting and by drying in the sun sizable quantities of the stems and leaves of one of the following three grasses:

Talák. Themeda gigantea (Cav.) Hack.
Local names: *takik* (Bon.); *teldak* (Pang.)
Táib. Saccharum spontaneum Linn. subsp. *indicum* Hack.
Yábot. Imperata exaltata Brongn.
Imperata cylindrica Beauv.

The *yábot* is the common, widely used "kogon," and makes the most satisfactory thatch.

It is not unusual to see dwellings constructed wholly of bamboo; posts and framing, flooring, walling, and even the roofing. Roofing of bamboo, usually *bo:'-mantűg, Gigantochloa levis* (Blco.) Merr., is made by splitting the lengths of bamboo into halves lengthwise, knocking out the node wallings, and then facing and overlapping the halved bamboos (see Plate 11, fig. 2). The fan-shaped leaves of the *anáw, Livistona* spp., are also used for roofing, particularly by the Negritos living on the northwestern slopes of Mt. Pinatubo where this palm is very common. The leaves of the rattan *láwin-naudít, Calamus* sp., are on occasions used for roofing material. When available, the large leaves of the wild bananas are used for roofing the temporary shelters, for construction with this medium is simple and quick. This latter type of roofing is called specifically, *lugpáw.* I have seen many *tinangűb* types of dwellings roofed with the dried sheath of the banana stalk (see Plate 12, fig.

3). Many different materials are used for roofing depending upon the type of construction, and the availability of particular plants.

Plants used for walling.—A great variety of materials for walling are also utilized by the Pinatubo Negrito, but among the deeper groups the most common medium is the dried sheath of the banana stalk (see Plate 12, fig. 3). Many strips of the dried sheath are folded over horizontal rows of wall braces so that each higher row overlaps the next lower row.

In the better built Negrito dwellings, and among the lowland Sambal, walling is made by partially splitting the large bamboo *kawáyan-mantŭg, Bambusa spinosa* Roxb., into board-like lengths which, when flattened, are about 35 cm wide. These bamboo "boards" are placed vertically and held in position by wall braces. This type of walling has a specific name, *tayag-tál.* Smaller bamboos, usually *bo:'-mantŭg, Gigantochloa levis* (Blco.) Merr., are halved and overlapped face to face, to form an excellent walling called *taŭb.* This latter type of walling is also placed vertically and is held in position by horizontal wall braces. A walling, called *abŭg,* is made by stacking whole bamboos, one on top of another, which are held in position by upright braces at the corners of the dwelling (see Plate 11, fig. 2). Finally, the large grasses noted above as being used for thatch, are on occasions employed for walling.

The general term for all types of walling, among both the Pinatubo Negritos and the lowland Sambal, is *linglíng.*

Plants used for flooring and for tying all parts of the Negrito structures.—The temporary shelters and the sheds have no living-platform, but all other living structures have flooring. In the better dwellings, the flooring, *hiíl,* is made of neatly split and trimmed bamboo, but in the cruder homes the flooring is constructed of only small, straight branches, or even of whole bamboo.

Split rattans are normally employed for tying all parts of the dwellings and other structures (*cf.* list of rattans used for tying on p. 299), but for the temporary shelters any handy and strong vine is used.

PLANTS EMPLOYED IN THE CONSTRUCTION AND USE OF THE FORGE

The most startling complex encountered among the Pinatubo pygmies is the presence of the vertical, double bellows, bamboo forge called *pindáyan* or *pihákan* (the latter from the Sambal term for "iron," *páhak*). Although the forge would appear to

be a too advanced and complex a trait to be found among a semisedentary Negrito group, there is considerable evidence to show that the Pinatubo pygmies, specifically the groups in the Villar and Baklay areas, have possessed this tool for a considerable period of time.

Today, and in the memories of the oldest men, the Pinatubo pygmies manufacture over fifty varieties of metal projectile points all of which have either a specific or descriptive name. Some of these metal points which have barbs, *himá'*, placed at right angles to the blade of the point can only be made by means of the forge and, as a matter of fact, by only a few skilled smiths. These points, such as the *binulílat* (from *bulílat,* a "rattan," with an infix, *in,* meaning "like the thorns of the *bulílat*"), have been traded throughout the entire Zambales Range among the various Negrito groups and everywhere are highly prized (*cf.* Plate 7, fig. 1). I have collected the beautiful *binulílat* in Bataan among the Dinalupihan-area Negritos and although they admit the point was not made by them, they are not aware of its origin, merely stating that the arrow (and point) was inherited. The same arrow is found in Tarlac among the Aburlin pagans and still farther north among other Negrito groups, but these latter people being closer geographically to the Pinatubo pygmy groups know that these points were all made in the forges of the Pinatubo Negritos, particularly, in the deeper Bakláy area (see Map.) The pygmies behind Fort Stotsenberg, Pampanga, also obtain this point from the Pinatubo Negritos. Throughout the entire Zambales Range, this point is called *binilíng* or *binulílat.* It is apparent that the forges of the Pinatubo Negritos have turned out thousands of metal projectile points over a considerable period of time and that these points have diffused throughout the entire Zambales Range giving a similar cultural pattern.

I have contacted numerous smiths among the surrounding lowland people to check on the possible extraneous origin of the typical Negrito points. One smith in Botolan, Zambales, the nearest lowland town where forges are found, has been using the very same forge continuously for the past fifty years. This forge, however, is the horizontal, single bellows, double action type, which is apparently of recent Chinese origin. He had never seen or heard of the type of forge employed by the Baklay and Villar Negritos. This smith had made many spear points

in the past, as well as a few arrowpoints, but never the types of projectile points which are typically Negrito.

It is possible that the forge was introduced to the Negritos by the Ilokano immigrants of southern Zambales, as this same type of forge is widely used by the Ilokano, and as is suggested by the comparative nomenclature of parts of the forge. However, the Negritos in the Sawang and Aglao areas (see Map) who have been most influenced by the Ilokano, do not possess this forge. I presently believe that the Pinatubo pygmies were using this forge before the Ilokano settlements arose in southern Zambales.

A sizable number of traditional beliefs govern the use of the forge. Although, as we have noted, much of the customs and traditions of the Pinatubo pygmies are closely related to the Botolan Sambal, I have not been able to find similar beliefs among the latter people. Running on either side of the forge, from the outer edge of the shield to the outer edge of the pistons, are a number of aligned stakes (see Plate 13, fig. 4). The pygmies believe that if a person or animal passes between the shield and the bellows, particularly when the forge is working, that the trespasser will die. To prevent such an occurrence—small children are the most likely victims—the stakes are placed to inhibit any passage.

When the forge is being worked, no one is allowed to catch shrimp. If shrimps are caught, the smith or the fisherman is likely to be struck by thunder. It was the opinion of one Negrito that the similarity of the color of the carapace of the shrimp to the glow of the coals had stimulated this belief. The pygmies also state that a person will be attacked by thunder if the wood which has been gathered for use as charcoal with the forge, is employed instead for cooking purposes, or even if the fire pit of the forge is used to cook in. When a smith is pounding iron, he is very careful to see that no one passes in front of him. If this should occur, something "dangerous" will happen to the smith, or to the person breaking the *tabu*. While the forge is being worked, laughter is forbidden either by the smith, the helpers, or the spectators. Laughter is strongly *tabu* among the Pinatubo pygmies in the presence of sexual intercourse, or in any activity which simulates coitus. In this instance, of course, it is the action of the pistons.

The smith's profession is the most skilled trade found among the Pinatubo pygmies and carries with it considerable social status. The actual metal working is a man's job, although

women and children may pump the pistons. The smiths do not work systematically, but only when there is freedom from other activities, leisure time because of the rains, or a specific demand for their products. Moreover, the smith is not a specialist, that is, confining his labor solely to the forge, but carries on the usual daily activities of the men in his group.

All metal is, and was, obtained from the surrounding lowland people, but as we know that the Filipinos were making iron prior to the Spanish conquest and using this same type of forge, it is a possibility that the Pinatubo Negritos were also working metal points and bolos during the very late "protohistoric" period.[152] I have reported an extensive procelain site in the very heart of the Negritos' territory, at Purákin near Ugík, and the surface collections of sherds from this site were identified by Professor H. Otley Beyer as 13th to 15th century Yuan and Early Ming wares.[153] If archaeological investigations could be made in the Pinatubo area, in this site as well as in others which I have subsequently heard of, it might be possible to define quite accurately the length of time in which the pygmies have used and made metal tools and arrowpoints. Part of the Negritos' territory has been subject to intensive outside influences by more developed people for a long period of time, as the Capas Trail, one of the few natural passages through the entire Zambales Range, passes directly through the territory of the pygmies. I feel certain that the Pinatubo Negritos have possessed the forge for a few hundred years; certainly, from the early or middle Spanish Period, and possibly earlier.

The forge used by the Pinatubo pygmies is simple in construction and is well adapted to even a semisedentary life (see Plate 13, figs. 1 and 4). It may be constructed and be operating in one or two days depending upon the availability of the necessary materials and, except for the shield, is portable. The fact that this forge is adjustable to the mobility of these pygmies also argues that it may be of considerable antiquity among them. The two upright bellows are each made of approximately two and one-half internodes of the large bamboo, *kawáyan-mantűg, Bambusa spinosa* Roxb., and called *lúmog*

[152] Beyer, H. Otley. Filipino art and culture of Pre-Spanish time. Philippine Saga, chap. 8 (1947) 33, plate 104 for pre-Spanish, iron-age weapons.

[153] Beyer H. Otley. Outline review of Philippine archaeology by islands and provinces. Philip. Jour. Sci. 77 (1947) 225.

from the Sambal term for "hollow." The upper two nodes, which form the natural partitions within the bamboo, are knocked out, forming an excellent piston chamber. The pistons, *huhodhód,* are carved out of a hard wood, and provided with feather gaskets, the *papulók* (see Plate 13, figs. 2 and 3). The small air ducts, called *angyíb* (also the term for "blowpipe"), leading from the base of each bellows to the stone shield, are invariably made of the small, hollow bamboo, *bíkaw-mantűg, Schizostachyum fenixii* Gamble. The stone shield is normally rectangular in shape, and has a small hole at ground level through which the air passes from the two blowpipes and fans the fire. This shield, *ibűng.*[154] protects the bellows and blowpipes from the intense heat of the charcoal pit. As the pistons are pumped alternately by the helper, a strong current of air is provided. Sometimes a platform is provided on which the person pumping the pistons may sit. The construction of this forge is almost identical to those used by many other Philippine people.[155]

For charcoal, the Pinatubo Negrito uses only the following woods:

Ágay-ágay. Bridelia glabrifolia (Muell.-Arg.) Merr.
Aladóng. Trema orientalis (Linn.) Blm.
Anahígi. Albizzia saponaria (Lour.) Blm.
Balokanág. Chisocheton cumingianus (C. DC.) Harms
Local name: *balukanág* (Tag.)
Boyngáh. Wendlandia luzonensis DC.
Pánagulíngin. Cratoxylon celebicum Blm.
Local names: *panagulíngon* (Tag.); *pagoringon* (P. Bis.); *paguringan* (Mag.), The local names for *Cratoxylon* spp., have unquestionably been derived from the widespread use of these woods as charcoal, for the common word-bases *uling, uring,* etc., mean "charcoal."

I doubt whether there is another Negrito group in the Philippines that makes and utilizes the forge. It is not a characteristic tool of Philippine pygmy groups. However, the forge is an important part of the contemporary culture of the Pinatubo Negritos and the trait is apparently quite old. Any histo-

[154] The term *ibéng* in Iloko designates the base for the bellows of this same type of forge and is obviously related to the Negrito term, *ibűng.* This latter word is not known to the lowland Sambal, the Tagalog, or Pampangan, but the rest of the nomenclature of the Negritos' forge is similar to that employed by the Sambal even though their forge is of a different construction.

[155] *Cf.* Christie's, The Subanuns of Sindangan Bay. Manila, (1909) Plate 18.

rical-functional discussion of these people must necessarily treat of this tool.

PLANTS USED IN THE BOLO COMPLEX

The presence of the forge has also enabled the Pinatubo Negrito to make many varieties of bolos and knives each having specific functions and name, but which are called in general *útak* (see Plate 9 for representative types of their bolos). The *katána* is the most beautiful bolo, having a long, thin blade, and which is used only for fighting, for bride price, or as gifts to the spirits. This bolo commonly has a beautiful geometrically patterned handle carved from the black horn of the water buffalo. The finest *katána* are found among the Aburlin pagans who live in the Tarlac area of the Zambales Range, adjacent to the territory of the Pinatubo Negrito, and who though closely related in culture to the Pinatubo pygmies, are mostly non-Negrito in physical type. However, the blades for the Aburlin's *katána* are fashioned in the forges of the Pinatubo Negrito; specifically, in the Baklay area. The *yánoh* and the *dipaláta* (from *díla'*, "tongue," denoting the shape of the blade) have the same uses as the *katána* with long, thin blades, but vary in form.

The *hundáng* (*sundáng* in many Philippine dialects) is a rather small bolo with a narrow, pointed blade. This is the type commonly carried by the men and used in countless daily activities, such as in making a bow, or cutting the feathers for fletching, but this bolo is never used for making clearings. The *ádol,* the *talódo* or *tagóho,* are thick bladed, blunt headed, work bolos used by the men, and particularly by the women, in making the clearings, in planting, and in digging tubers. In addition, there is the curved *kumpáy,* with a saw-toothed edge, used in harvesting rice; small work bolos, the *pandúl* or *ongkáb;* still smaller household knives, the *küyá',* and many others such as the *binakóko, panabód, abókay,* and *kaláwit,* each distinctive in shape. Even in instances where blades may be obtained from lowland forges (e.g., the *pandúl*)—particularly from the Pampangan in the vicinity of Patling, Tarlac—the blades will be reworked to conform to traditional patterns. All of the scabbards as well as handles of the knives and bolos are made locally by the owners of the blades.

Woods for scabbards.—The bolo scabbards, *gúma,* are made very skillfully from two pieces of wood. One thick piece is chiseled out to fit exactly the blade of the bolo and the other

forms a thin, flat cover (see Plate 9). The work is so well done, and the two pieces put together so carefully, that it is sometimes difficult to detect that two separate pieces of wood are actually forming the scabbard. The pieces are glued together with pastes obtained from specific plants (these plants will be discussed below) and, in addition, may be strengthened with rattan bindings or with wooden pegs. The following woods are used specifically for making scabbards:

Anggagaf'. Gomphandra cumingiana (Miers.) F.-Vill.
(tree) No cognates were found.

Bálung-áyta. Diospyros sp.[156]
(tree) Local names: *bolongéta* (Tag.); *balingágta* (Ibn.); *atá-atá* (P. Bis.) for *Diospyros* spp.

Banatóh. Mallotus philippensis (Lam.) Muell.-Arg.
(tree) Local name: *banato* (Tag., Ibn., Ig.)

Báyoy. Pterospermum obliquum Blco.
(tree) Local names: *bayói* (Pamp.); *bároi* (Ilk.); and *bayóg* (Tag.).

Boyngáh. Wendlandia luzoniensis DC.
(tree) No cognates were found.

Kalibutbút-ya-tagálbag. Voacanga globosa (Blco.) Merr.
(small tree) Local names: *alibútbut-nga-bai* (P. Bis.); the term *tagálbag*, as used by the Pinatubo pygmies, defines the fact that the birds do not eat the fruit of the plant.

Laníti or *anaótung. Wrightia laniti* (Blco.) Merr.
(tree) Local names: *anótung* (Tag.); *laníti* (Tag., P. Bis.)

Lulpó'. Arthrophyllum ahernianum Merr.
(small tree) Local name: *danipo* (Ig.)

Natό'. Palaquium sp.
(large tree) Local names: *natό'* (Tag.) for *Palaquium* spp.

Ngúho'-dagí. Ligustrum pubinerve Blm.
(large bush) The Negrito also call a plant of New World origin by this same name meaning the rat's snout."

Pangkól. Aralia bipinnata Blco.
(tree) No cognates were found.

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[156] *Diospyros* spp., are hard, dark wood trees and the color of the wood has undoubtedly provoked the common local plant names for this genera. The terms *áyta, éta, íta, agtá, atá,* all cognates, are used by the lowland people throughout the Philippines to define the dark skinned, "Negroid" groups.

Pánagulíngin. Cratoxylon celebicum Blm.
Pupukkól. Ardisia verrucosa Presl.
Pupukhol-bagbág. Ardisia proteifolia Mez.
(small trees) No cognates were found for the plant name *pupukhól*, but it is probably a locally coined word. The word *bagbág* means "a large, heavily wooded forest," and in the Negritos' classification system differentiates these two Ardisiae by the habitat of the latter which is in the forest.

Tambálaw. Myristica philippensis Lam.

A reddish, shellac-like material, which the Pinatubo pygmies call *pamaudít* (from *maudít* or *naudít*, "red"), is obtained from the scraped bark of this tree. This is merely rubbed on the surface of the scabbards to give a colored polish.

The bark of the *banáw-laláki, Neonauclea bartlingii* (DC.) Merr., is sometimes attached to the scabbards to form an unusual decoration which is called specifically, *gáot*. The mature fruit of *bulináy, Antidesma pentandrum* (Blco.) Merr., yields a black dye which is also used for decorating the scabbards. According to Merrill, this latter plant is called *balanei-na-manók* in Pangasinan, *bugnai* in Ibanag and Ilokano, and *bunai* in a Negrito dialect the location of which he does not note.

Woods for bolo and knife handles:

Áum-áum. Melanolepis multiglandulosa (Reinw.) Reichb. f.
(small tree) Local names: *aém* and *alím* (Tag.); *alím* (P. Bis.); *alám* (Ilk.).

Ballíwüt. Ethretia polyantha R. Br.[157]
bubóh. Litsea sp.
pulínin or *pulílin. Hymenodictyon excelsum* (Roxb.) Wall.
(tree) No cognates were found.

Tambálaw. Myristica philippensis Lam.

Óah. Harpullia arborea (Blco.) Radlk.
(tree) Local names: *oas* and *poas* (Tag.); *uás* (Ibn., Ilk.)

The bolo is now so characteristic and so functional a part of the Negritos' culture that it is difficult to imagine what their life would have been like without this omnipotent tool. It

[157] According to Reyes, this wood is commonly used in the Tagalog areas for the handles of bolos. Reyes, Luis J. Philippine Woods. Manila (1938) 426.

would appear from Careri's observation,[158] that the Zambales Negrito have possessed metal knives and bolos for at least 253 years and probably longer. However, the use of metal is quite limited among the Pinatubo pygmies, being confined wholly to metal arrowpoints, tools used with the forge, bolo and knife blades, and to the homemade shotguns. Nevertheless, the efficiency obtained through using the bolo (only one type of a metal tool) has produced a tremendous change in the behavior of the pygmies. This change extends not only to economic activities, craftsmanship, and increased control over the environment, but has also had a marked influence upon their institutional structures and values. For example, the use of more efficient tools has provoked an individualism which is, at present, constantly conflicting with the basic communal organization of Negrito society. This will be discussed fully in another manuscript.

LEAVES USED FOR SANDPAPER

The polished surfaces found on the pygmies' bows and arrows, on the bolo scabbards, guitars, wooden eating plates, and on other objects, are obtained, in part, by employing the dried leaves of specific plants as a "sandpaper." This is a widespread practice in the Philippines among both the Christian and Non-Christian people and the plants used for sandpaper by the Pinatubo pygmies are also commonly used by the surrounding people.

The leaves of the following plants have minute, stiff, silica hairs, and when dry, make an excellent natural sandpaper:

Aladíad or *kalaháka*. *Tetracera scandens* (Linn.) Merr.
(vine) Local name: *alaríad* (Bot.-Sbl.); no cognates were found for *kalaháka*.

Gihigíh. *Ficus blepharostoma* Warb.

Tiplí'. *Ficus odorata* (Blco.) Merr.
(small tree) Local name: *tiplí'* (Bot.-Sbl.). This plant name is also the generic term for "sandpaper."

PASTES OBTAINED FROM PLANTS

Pastes, called *kóla'* (*kóla*, Tag.), are obtained from a number of native plants. These plant pastes have many uses; for example, to glue the sections of wood forming the guitar, to secure the glass windows in the water goggles, to hold together the two pieces of wood forming the bolo scabbards, to mend pots, to secure the points of arrows in the shaft, and to cement the blades of knives in the handle, and so forth. The following

[158] Reed, W. A. Negritos of Zambales. Manila (1904) 29.

plants are also used by many other Philippine people for the same purpose and there is nothing unique in their usage by the pygmies.

Anónang. Cordia dichotoma Forst.

The white, gelatinous substance from the fruit of this small tree makes an effective light glue. This plant is also called *anónang* in Ibn., Ilk., Tag., Bik., and Bis.

Bangábah. Macaranga grandifolia (Blco.) Merr.

The red sap from the bole of this tree is used in gluing together the two sections of wood composing the bolo scabbards. No cognates were found for this plant name.

Bubóh. Litsea sp.

The outer bark of this tree is scraped to obtain an oily paste. This paste is used specifically to mend small cracks and plug holes in pottery vessels.

The Negritos make no pottery, although it is rather extensively utilized by some groups for cooking, and for storing drinking water. Moreover, insofar as I can determine, pottery is not made by the Sambal. The pottery found in the Botolan market (the source of the Negritos' pottery), as well as in the markets of the Sambal towns to the north, is made mostly in the Ilokano communities of southern Zambales.

Kóla'-babái. Geodorum nutans (Presl.) Ames
Eulophia squalida Lindl.

The rhizomes of at least two ground orchids are commonly used by the Pinatubo pygmies for glue. The bulbous rhizomes are heated, cut into half, and then scraped until a sticky mass of paste is obtained. According to the Negritos, this is the very best glue, and is used extensively when making guitars and bolo scabbards. Manuel Celestino, of the National Museum, reports an identical preparation and usage among the people of Cebu. The Negritos in the Fort Stotsenberg area (Clark Field), on the eastern slopes of Mt. Pinatubo, use the large rhizomes of a ground orchid, *Acanthophippium mantinianum* L. Linden and Cogn., for paste in the same manner. They also call this plant *kóla'*.

The Pinatubo pygmies call a number of ground orchids, without bulbous rhizomes, and having no use, *kóla'-laláki; Calanthe furcata* Batem., *Habenaria* spp., and *Malaxis* spp. As we have seen, *kóla'* is the Sambal term for "paste" or "glue,"

and the Negritos distinguish the useful ground orchids with the term *babái*, "woman," and the non-useful, with the term *laláki*, "man." The differentiation of plants having physical similarities as "woman" and "man" (the male and female plant) is a widespread practice among Philippine ethnic groups.

Dulít. Canarium sp.

A slash is made in the trunk of this tree and the sap is collected for paste. This sap is mixed with beeswax, and then used to secure and waterproof the edges of the glass windows in the water goggles. The pure sap is also used to secure arrowpoints in shafts, and bolo blades in handles. According to Merrill, *Canarium multipinnatum* is called *dulit* in Tagalog, and Brown notes that *Canarium asperatum* is *dulit* in Sambal.

A vine, *Ampelocissus pauciflora* Merr., is called *dulít-ya-kíniw* meaning the "*dulít* vine," but this latter plant has no use.

Bukó-bukón-kóla'. Ophiorrhiza mungos Linn.

The stem of this plant is scraped and the mash forms a good paste used in making the bolo scabbards and guitars.

PLANTS USED IN MAKING BASKETS

At present, the Pinatubo pygmies make and conceptually distinguish twenty-eight different types of baskets; however, most of these are of recent lowland origin borrowed by the pygmies as an associated part of cultural complexes which are foreign to them. For example, when Reed first studied the Zambales Negritos, there was practically no rice planting or utilization of rice, and consequently winnowing trays, sifters, storage baskets, etc., usually associated with the rice-complex, were rare. Today, among some of the more acculturated Negrito groups, these are commonly utilized. In addition, basket weaving has been taught at the Villar Settlement Farm School since 1907,[159] and weaves originally utilized by the surrounding lowland people have been purposely introduced to the Pinatubo Negritos. The sizable number of baskets which are recognized by the Pinatubo pygmies are also, in part, a product of the manner in which they distinguish types, for the twenty-eight varieties are not all basically different in form and use. Two baskets may be identical in method of construction, form, and function, but if they vary markedly in

[159] Cushman, W. J. The Villar Settlement Farm School. Philippine Craftsman (1914) 553–559.

size, each will have a distinct name. Other baskets which are basically similar, but which are made of different materials, are each given different names.

All baskets are made of either bamboo or rattan, neatly split and trimmed to the desired width for weaving. In contrast, however, to other Philippine people who use the same mediums, the baskets of the Pinatubo pygmies show very poor workmanship and within the group have little value. They are never used for bride price as are bows and arrows, bolos, and other items. I have seen good baskets, which were still useful, thrown aside and abandoned. Whenever possible, the Negrito will obtain baskets from the lowland Sambal, or from the Aburlin pagans to the north. The latter group makes very fine and decorative baskets (see Plate 14, fig. 2) which are prized by all of the Pinatubo pygmies.

As can be seen by examining Plate 14, the cruder types of Negrito baskets are made with a simple one-over, one-under checker weave. The *talin-talín* (see Plate 14, fig. 3) and other more attractive baskets are made with a diagonal two-under, two-over plait. These are the two most common weaves throughout the Philippines.

The basket most frequently seen and utilized by the Pinatubo pygmies, and which is not found among the surrounding lowlanders, is the *lubón*[160] (see Plate 14, figs. 1, 8), and variations of this type. The typical *lubón* is round and deep, with square corners on the bottom, and is carried by means of a head strap across the forehead. This characteristic basket is invariably made of *pŭhiw, Schizostachyum lumanpao* (Blco.) Merr., with a simple, checker weave. The head straps, *awíwi,* are made of either the dried sheath of the banana stalk, or the dried bark of the *dangóy, Grewia multiflora* Juss. This pack basket is used principally by the women when traveling to gather food, when moving the household, or when packing the "kaingin" harvests back to the dwelling. If made of the bamboo *baytó,* also *Schizostachyum* sp., and very large, this type of basket is called *bagyá* (Sp.). If made of a rattan, usually a species of *Calamus,* with a twilled weave, the basket is called *dandán* (see Plate 14, fig. 5). Very small pack-baskets, sometimes used by the women, but mostly by young girls as they mimic the work activities of their mothers, are found which are identical in form and con-

[160] This same basket is called *kaláykay* by the Negritos in the Dinalupihan area, Bataan.

struction with the *lubón*. These latter are called diminutively, *lubón-lubón* or *oybón-lubón* (see Plate 14, fig. 8). The *taponán* (see Plate 14, fig. 6) is like the *lubón*, but it is not as deep, and the checkered weave is more widely spaced. As indicated by the name of the basket, it is used by the women in preparing the clearings to cart away, "throw away," weeds, grasses, and wood.

Numerous *sakopít* (see Plate 14, fig. 10), a pack basket carried by means of shoulder straps, are now found among the Pinatubo pygmies. Normally, these are utilized by the men, as the women traditionally prefer head straps to support loads. The bark of *Hibiscus tiliaceus*, called *maguguhí'*, is used in making the shoulder straps for this pack basket. Though some *sakopít* are made by the Negrito, they are usually obtained in trade from the Sambal and the Aburlin. I have seen this type of basket among many Christian and Non-Christian groups in central and northern Luzon.[161]

A variety of baskets are employed in daily household activities. Most commonly seen is the *talín-talín* (see Plate 14, fig. 3) which is a relatively small, bowl-shaped, all purpose basket. These are made of split bamboo with a two-under, two-over diagonal weave. A larger variety of this same basket, the *talín* (also called *binalúlang*) is commonly encountered. Personal articles, such as clothing, beads, combs, etc., are stored in the corners of the dwellings in large, square, box-like baskets provided with a slip-over cover, the *kampípi'*. All of the surrounding lowland people make and utilize this same type of basket and it is very common among the mountain tribes of northern Luzon.[162] The *kampípi'* type of basket is normally made of rattan, but if made of bamboo, it is called *bákol* (the smaller varieties, *bákol-bákol*). Even the flint, steel, and tinder for fire-making are kept in a small, oblong basket with a slip over cover, the *balín-pantíng*, that is, the "house of the strike-a-light" (see Plate 14, fig. 4). This basket is always made of split rattan with a twilled weave. Elongated baskets, the *binukwán* and the *paloklók*, are used for storing seeds and tobacco respectively. In addition to using banana leaves, wooden plates, as well as ordinary china and metal plates when available for eating purposes, the Pinatubo Negritos make a flat,

[161] Compare the carrying basket of the Benguet Igorot (Ibaloi) illustrated in Parker, Luther. "Primitive Philippine Basketry," Philippine Craftsman (1913) 75.

[162] Ibid., p. 74.

round, tray-like basket to use as a plate. This utensil is specifically called *gügübán.*

Among the Negrito groups who grow some upland rice, and among families who obtain unhusked rice as payment for working in the lowlands during harvest times, winnowing baskets are seen. The winnowing trays are round, identical to those encountered among the Tagalog and Sambal, and are made of *baytó, Schizostachyum* sp. If large, these trays are called *biláwo,* if small, *bibiláwo.* Rice sifters, *bihtáy,* made of bamboo with a wide twilled weave are also utilized.

When the Negritos are fishing with a pole and line, gathering shrimps and small fish from under rocks by hand, damming rivers, or even when utilizing the flood-trap, two types of baskets are used to hold the catch. The *kobúb* is an hour-glass type of fat-bodied basket with a flap cover. This "creel" is seldom made by the Negrito, though very commonly used, and is obtained from the lowland Sambal. The *koyumpól* (see Plate 14, fig. 7) is utilized in the same way and is made by all of the Negrito groups. The latter is apparently one of the older forms of baskets.

Some of the Pinatubo pygmies utilize woven sleeping mats, the *amák,* which are obtained from the Sambal. Although mat weaving has been taught in the Negrito School at Villar, I did not see any of the pygmies making these.[163]

As noted above, all baskets are made of either bamboo or rattan. The small bamboos which are most commonly utilized are; *bináhak, baytó, ganíhI', püíhiw,* and *yábIl,* all *Schizostachyum* spp. A sizable number of the rattans can be used in making baskets, but the following species of *Calamus* are most satisfactory, as well as most common in the Pinatubo area: *babúyan, lübnóy,* and *láwin-naudít.* I did not see a single basket made by the Pinatubo pygmies having imbricated design patterns, such as are found among other Negrito groups in the Zambales Range. Nevertheless, informants stated that the dried stems of two plants are used to form attractive, imbricated patterns on the baskets; the split, dried stem of the fern-vine

[163] Three useful plants were collected on the lower slopes of Mt. Pinatubo and in the lowlands which, though not used by the pygmies, are important to the Sambal. Both groups employ the same names for the plants. The stems of the *halóloy-dalág, Cyperus distans* Linn. and *Cyperus diffusus* Vahl., and the *maglalabtáng, Tinomiscium philippinense* Miers, are woven into hats. The *hílal, Corypha elata* Roxb., is used for weaving sleeping mats, as well as hats.

níto'-mantúg, Lygodium circinnatum (Burm.) Sw., which is very black, and the dried stem of an epiphytic orchid *lálaw, Dendrobium luzonensis* Lindl. The stem of the latter, when dry, is a brilliant yellow, and is extensively employed by other Philippine pagan groups with whom I have worked.[164] The Bataan Negritos, being betel chewers, make small, oblong baskets which are slung from the shoulder to carry the betel nut, leaf, and chewing tobacco. These baskets, called *patakílya,* have very attractive designs made with an imbricate weave of both *líto', Lygodium circinnatum,* and *lálaw, Dendrobium* sp.

The basket forms of the Pinatubo Negrito do not evidence any unusual characteristics and are common Philippine types.[165] In addition, the names of the baskets, except *lubón,* can be found with minor phonetic variations among many Philippine non-Negrito people. The plants used by the Pinatubo pygmies also have widespread usage. With the exception of the baskets specifically noted above, the baskets of the Pinatubo Negrito are either copies of recently introduced types, or baskets obtained by trade from the more skillful weavers found among the surrounding people.

PLANTS AND HOUSEHOLD UTENSILS

With the exception of a few items, such as the wooden mortars and pestles which are not characteristic of the more primitive Negrito groups, all of the household utensils of a typical pygmy family can be placed in one or two large pack baskets. It is no great problem for the Negrito women to shift their households.

As we have discussed, three large bamboos of prehistoric introduction, and the endemic *Schizostachyum lumampao,* are extensively utilized in making household utensils. The use of these bamboos has had great molding effect upon the culture of the Pinatubo pygmies. In addition to the utensils made of bamboo which have already been discussed, a few other items found in every household should be described. For storage

[164] Fox, Robert B. Notes on the orchids and people of northeast Polillo Island, Quezon Province. Philippine Orchid Review 3 (1950) 18.

[165] Parker, Luther. Some common baskets of the Philippines. Philippine Craftsman (1914) 1–25, with numerous plates. Parker notes, p. 7, that *Dendrobium crumenatum,* called *irao* by the Bisayans, is used to decorate baskets. The local names *lálaw,* and *irao,* are obviously derived from the terms for the color "yellow"; the color of the stem of species of *Dendrobium.*

purposes, there is the *hayapíl,* a troughlike wall rack made of bamboo slats, and the *hapátan,* a flat rack suspended directly above the hearth which is also made of bamboo slats or small branches. This latter rack holds kindling, tobacco, and other items, which are kept dry during the months of heavy rains by the heat and smoke from the hearth. The primary storage area of the dwellings is not, however, these two racks, but the inner sides of the roof. Innumerable objects are stuck here at random to be safe from the prying hands of the children; bows and arrows, feathers for fletching, leaves and stems of plants for medicinal purposes, the *toyhók* which is a sharpened piece of bamboo decorated with a tuff of shavings used to test whether or not the camotes and other tubers are properly cooked, combs, many partly smoked cigars, and other personal items.

Bamboo tubes of various sizes are also important for storage purposes, and each type, as determined by its use, has a different name. The *hüpá* is a relatively short, bamboo tube provided with a cover made from the sheath of the banana stalk and is used to store the fletching feathers. Longer bamboo tubes hold prize arrows, as well as the seeds for the next planting.[166] As we have noted, the bamboo tubes used in storing seeds are provided with plugs made of tobacco leaves to keep out the borers. Salt, when available, is kept in a special bamboo container, the *kanyúti.*

In the past before pottery and metal vessels were obtained from the lowlands, cooking tubes made of bamboo were extensively employed. The usual type of cooking tube is/was made from a single internode of green bamboo with the node partition at one end removed. These are called *biáh.*[167] In addition, the Pinatubo pygmies have made three other types of cooking tubes from bamboo. These are rarely seen today. The *patoláng* is also made from a single internode, but the node partitions at the ends are left intact and a round hole is made in the center of the internode. Unlike the *biáh* which is used in a standing position, the *patoláng* is placed over the fire

[166] Containers for storing grains of rice to be used in the next planting are sometimes made from the trunks of the palms, *ágüh, Caryota cumingii* Lodd., and *idúk, Arenga pinnata* (Wurmb.) Merr., by removing the pith. These containers are called specifically *báhay* which means "house" in Tagalog and has obvious semantic relationship. The bamboo tubes for storing rice also have a specific name, *buklót.*

[167] In Tagalog, and in other dialects, an "internode of bamboo or cane" is called *bíás.*

horizontally. The *tinanínin* is composed of two internodes with the three node partitions left intact. Holes are made in the tube near the upper end of each internode. By using this tube, two foods can be cooked at the same time. Finally, there is the *binutákal* which is a telescopic double-boiler. Food is placed in a smaller tube which is then inserted into a larger one filled with water. All used cooking tubes are called specifically, *bintákan.*

All of the cooking tubes, as well as the storage tubes described above, are now made of three prehistorically introduced bamboos: *Bambusa vulgaris* Schrad., *Bambusa spinosa* Blm., and *Gigantochloa levis* (Blco.) Merr. Consequently, these bamboos could not have been utilized by the earliest Negrito inhabitants of the Zambales Range. In personal conversations, Professor M. D. Sulit has pointed out that the Bataan Negritos utilize for cooking tubes the stem of the bamboo, *Schizostachyum lumampao* (Blco.) Merr. I know of no other native bamboo in the Zambales Range which is sufficiently large for this same purpose, and as *Schizostachyum lumampao* is very common throughout the Zambales mountains, it would suggest that this was an earlier medium employed by the pygmies.

Wooden plates.—Well made wooden eating plates are encountered among the deeper Pinatubo Negrito groups. I have not seen these plates among any other Negrito groups in the Zambales Range and it appears that they are of lowland Sambal origin, for they have been extensively utilized in the past by the Sambal in the Municipality of Botolan. These plates are round, about 30 cm in diameter, approximately 6 cm in height, and 4 cm in depth at the center. There is no decoration. These *apág,* as the plates are called, are carved with a bolo out of a solid block of wood, usually, of *buláwIn-mantŭg, Vitex parviflora* Juss., and sometimes of *kayáhan, Ficus variegata* Blm.

Digging and planting sticks.—The Pinatubo pygmies employ three types of dibbles and each has a specific name. The digging and planting sticks are normally made out of the outer hard woods of palms; in addition, the wood of the tree, *bibihwák, Aphanamixis tripetala* (Blco.) Merr., is a popular medium. The *büák* is approximately one and a half meters long, the shaft rounded, one end pointed, and is used for making holes in the ground when planting camote tops, taro, stems of

the cassava, and so forth. The *húan*[168] is similar in appearance though much shorter, and is used for digging camotes and other tubers, or when working in a sitting position. The *iháü'* is differentiated by its use for planting upland rice and corn. Specific types of work bolos are also used for planting crops and in digging tubers.

The dibbles employed by the Pinatubo Negritos should not be considered as being evolved, or borrowed, since the introduction of cultivated crops, for they are still used today in digging wild tubers. I believe that digging sticks, similar to those employed at present, were in use long before the pygmies became shifting cultivators.

Tinder.—The tinder, *kabú-kabú,* for all fire-making equipment (the "firesaw," *payúwah,* the "fire-piston," *solpák,* and the "strike-a-light," *pantíng*) is obtained from a specific palm and obtained only by the men. According to informants, the married men must obtain the tinder from the palm *takípan,* and a widower or a single man, from the *ágüh.* As we have noted, these "two" palms have been identified as a single plant, *Caryota cumingii* Lodd., but that minor differences in the shape of the leaves do exist which have undoubtedly caused this erroneous differentiation by the Negritos.

Between the boot of the branch, and the trunk of this palm, there is a soft, downy-like fiber. When thoroughly dried in the sun, this fiber is highly inflammable, and makes an excellent tinder. It is obtained by merely scraping the trunk of the palm with a bolo. *Caryota cumingii* Lodd., is the common source of tinder throughout the Philippines.

When this fiber cannot be obtained, bamboo shavings called *balikahkáh* are used as a substitute tinder. Usually, the Negrito women will keep the hearth alive, or when traveling will carry with her a fire-brand, the *aypóh* (*cf.* Plate 5, fig. 4), thus eliminating frequent fire-making.

Ladles.—A ladle, the *handók,* with a scoop made of the halved coconut shell, and with a wooden handle, is also a common household item among the more acculturated Pinatubo Negrito groups.

[168] In Botolan-Sambal, the term *húan* designates a long pole which is used for making holes in the mud and sand while placing the piles for the fish corrals. The lowland Sambal call all dibbles *kakáli.*

This ladle is identical to that utilized by the Sambal and has unquestionably been copied from the lowland type. The handles of the ladles, called specifically *húlan,* are always carved from one of the following three woods:

Banáhi. Murraya paniculata (Linn.) Jack.
Bubóh. Litsea sp.
Laníti'. Wrightia laniti (Blco.) Merr.

Mortars and pestles.—Specific woods are also used by the Pinatubo Negritos in making the plain, single-holed mortars, the *láhong,* which are used principally in separating the chaff from grain of the rice and for pounding corn to make a powder for a corn bread. The following woods are used for the mortars:

Balinháy. Buchanania arborescens Blm.
Banabáh. Lagerstroemia speciosa (Linn.) Pers.
Bangkál. Nauclea orientalis Linn.
BuláwIn-mantŭg. Vitex parviflora Juss.
Pawhápi. Anisoptera thurifera (Blco.) Blm.

The double-ended pestles, the *láo,* are also fashioned from the hard woods of a specific group of trees:

Bálung-áyta. Diospyros sp.
Bibihwák. Aphanamixis tripetala (Blco.) Merr.
Dalín. Flacourtia indica (Burm. f.) Merr.
Dalína. Phaeanthus sp.

The lowland Sambal in the Municipality of Botolan, Zambales use these same plants, which are mostly of low and medium altitudes, for their mortars and pestles. Moreover, the mortars and pestles made and used by the pygmies are identical in form to those employed by the Sambal, indicating that the styles were borrowed from the latter group. Even today, mortars and pestles are not found among the deeper pygmy groups for, as we have noted, many of them do not plant or prepare rice.

Leaves used as plates.—Banana leaves are the most frequently used medium for plates, the *pangánan;* however, a number of other plants (which are all of widespread distribution in the Pinatubo area) are also used for this purpose, when they are more readily available:

Bangábah. Macaranga grandifolia (Blco.) Merr.
Laláta'. Maoutia setosa Wedd.

Taguktók. Curculigo orchioides Gaertn.
Agik-ík. Phacelophrynium interruptum (Warb.) K. Schum.
Local names: *hagikhík* (S-L.-Bis.); *hagitít* (Tag.).

PLANTS USED AS SOAP SUBSTITUTES

The Pinatubo pygmies show remarkedly little concern with cleanliness and care of the body. I have never seen an older man or woman purposely bathe and mothers rarely attempt to clean their babies and small children. Boys and young men are by far the cleanest of the lot, due to their continual diving and fishing in the rivers, as well as to the influence of the Villar Settlement Farm School.

The lack of cleanliness is in part due, as we have noted, to the prevalent belief among the pygmies that specific sicknesses are caused by frequent bathing and that dirt protects the body. Furthermore, the groups place no value on cleanliness *per se*. This attitude is also reflected in their living structures which are rarely swept or cleaned and their clothes which are almost never washed. Consequently, skin diseases and infections are rampant and the infant mortality is unbelievably high.

Nevertheless, the pygmies know which plants yield soap-like substances. This is probably due to the fact that they have gathered and traded these plants into the lowlands, where they have been extensively utilized. My informants state that on rare occasions, such as a trip to a lowland town where social pressure demands a degree of cleanliness, the Negritos do bathe and employ Chinese soap, or one or more of the following soap substitutes:

Anahígi. Albizzia saponaria (Lour.) Blm.

A shampoo for the hair is obtained from the bark of this medium sized tree. The saponaceous bark is scraped, the shavings soaked in a bowl of water, and then the shavings are squeezed to obtain a soap-like fluid. According to Merrill, this tree is called *salogígi* in Samar-Leyte Bisaya, and *salingígi* in Tagalog.

Dupílak. Glochidion luzonense Elm.

The leaves of this plant are pounded and then merely rubbed on clothing. No related plant names were found for this small, endemic tree.

Gógo'. Entada phaseoloides (Linn.) Merr.

Sections of the whole stem of this large vine are pounded, soaked in water, and then squeezed to get a juice which is used as a shampoo. This vine, and *Albizzia saponaria,* are commonly used throughout the Philippines as soap substitutes. The plant name *gógo'* is very widespread, appearing in Tagalog, Bikol, Tagbanuwa, Panay Bisaya, and in other Philippine dialects.

Langgínu'. Securidaca corymbosa Turcz.

The bark of this tree is pounded and used for washing the body or clothes. Reyes notes that this is the ". . . useful *binaki* bark employed by Filipino women in the Visayas for washing the hair as a substitute for soap."[169] No cogantes were found.

Talyó'. Pittosporum pentandrum (Blco.) Merr.

The leaves and bark of this small, endemic tree are pounded to obtain a soap-like, volatile oil. This plant is also called *talyó'* by the Christian Sambal in the Municipality of Botolan, but no other related terms were found.

PLANTS AND PERSONAL ORNAMENTATION

In comparison with other Philippine Non-Christian groups, the Pinatubo pygmies add very little in the way of ornamentation and body decoration to their person. The men utilize far more forms of beautification than do the women and this may, in part, be due to the practice of polygyny and the general attitude on the part of the men that the principal role of the women is work. Among the men, chipped teeth, scarification, bamboo combs,[170] arm and leg bands, as well as the neck band, the *bagŭdi,* are still common. The ornamentation of the women is confined largely to wearing necklaces of glass trade beads or of the hard, whitish seeds of the prehistorically introduced *bantákan, Coix lacryma-jobi,* brass finger rings or rings made from copper pennies, as well as flowers, grass, and small ferns worn in holes in the ear lobes. Chipped teeth and scarification are sometimes encountered among the Pinatubo Negrito women but are more common among the women of surrounding pygmy groups.

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[169] Reyes, Luis J. Philippine Woods. Manila (1938) 190.

[170] Among the Bataan Negritos in the Dinalupihan area, bamboo combs are made and worn only by women (see Plate 16, figs. 1, 2).

The most attractive ornament worn by the Negrito men is a neck band, the *bagŭdi* (see Plate 16, fig. 6), which wraps loosely around the neck two or three times. The basic element of this band is a neatly trimmed length of light colored rattan. Then, two or three strips of the bright green grass *hayápüh, Eleusine indica* (Linn.) Gaertn., are laid longitudinally on the strip of rattan. Finally, the trimmed black bark of the vine *kuliyát, Gnetum indicum* (Lour.) Merr., or the fern-vine *níto'-Mantŭg, Lygodium circinnatum* (Burm.) Sw., is woven at right angles over and under each strip of the green grass and around the rattan. This forms a very attractive green and black, checkered design.

Today, this neck band is usually worn as an ornament, particularly, by young dandies, but sometimes by the older men when participating in the *talbŭng*. This ceremony is held when it is believed that sickness is being caused by the spirits of enemies that have been killed by the participants, or even by the ancestors of the participants, and is an attempt to placate these spirits. Older informants report that in former times the men always wore the *bagŭdi* when they had killed a person, and the fact that the band is still worn during the *talbŭng* with a somewhat similar function would substantiate these reports.

Chipped teeth, *táyad,* are considered a mark of beauty and maturity and, more than any other single factor, culturally distinguishes an individual living in the Pinatubo area as a Negrito. I have known a number of men who had no true Negrito physical characteristics, but who possessed fine sets of chipped teeth and who in everyway were Negrito in thought and action. Either the upper front six teeth and/or the lower front six teeth are chipped to a sharp point with a knife or bolo (*cf.* Plate 16, fig. 5). A piece of wood may be inserted in the oral cavity to protect the mouth from cuts. Usually the chipping is done by the men, but the women may perform the operation, and two practices are observed during this activity. The subject must not show any pain or remark about it. If he does, he is required to pay a small fine to the chipper. If a fragment of a tooth should fly and hit a bystander, the person whose teeth are being chipped is subject to pay a fine to the person struck. There is no specific ceremony or age at which the teeth are chipped. Young boys ten or twelve years old may already have chipped teeth, that is, following the appearance of the permanent teeth. Some do not have their teeth chipped until they are in

the late teens. Many young men today, influenced by the Villar Settlement Farm School, are not following this practice.

Two types of scarification are commonly practiced by the Negrito men. Small cuts are made in the skin with the sharp edge of a sliver of bamboo and the leaves of the tree *lIpah, Laportea meyeniana* (Walp.) Warb., are rubbed on the fine cuts to produce a marked scar. These cuts are made so as to form a diagonal pattern on the chest. This type of scarification is called *hibít.* Among the Negritos in the Dinalupihan area, Bataan, a similar form of scarification is found on the back, breasts, and upper arms of the women. It is called *hübút* and is also produced by simple incisions with a sharp piece of bamboo. Mr. Hospicio Doble of Botolan, Zambales, reports that scarification was found among the old Sambal, but with a different function. Bezoar stones obtained from deer, the *batón-uwíha,* were sealed in cuts made in the skin to give the hunters *galíng,* that is, "luck and prowess." Though bezoar stones are also charms among the Pinatubo pygmies, as well as among many other Philippine peoples, I did not encounter this particular practice among the Pinatubo Negritos.

Tüktük is the most widespread form of scarification practiced by the men, and, in a few instances, by the women. A small piece of tinder is placed against the skin, ignited, and the flesh singed. The burn is aggravated and then allowed to fester until the proper keloid is assured. These scars are usually round, about the size of an American ten cent piece and are confined to the upper arms. The designs are, in general, crude and some motifs are the result of recent culture contacts. A boy living at Pauúwin had a perfect Pfc. chevron burned on his upper right arm; others had crosses. In addition to the function of these scars as beauty marks, the Pinatubo Negritos believe that sickness, particularly fevers, depart from the body at the point of the scar.[171] The Negritos in the Fort Stotsenberg area, Pampanga, now argue that these scars are an effective cure for malaria!

The stiff, boar's hair leg bands described and collected by W. A. Reed [172] have disappeared entirely and only the oldest men

[171] Reed, W. A., Negritos of Zambales (1904). Plate LVI is an excellent illustration of *tük-tük.*

[172] *Ibid.,* Plate XXXVII. The smaller boar's hair bands are worn on the wrists and the larger below the knees.

and women remember their use. My informants at Yamót stated that these bands were worn around the neck, the wrists, on the legs just below the knees, and were called respectively *buhílak, pantikáy,* and *tinikdüm.* They agreed that the general term for all of the bands was *kantíh.* The arm bands were worn by the men or women, but the neck and leg bands only by the men. According to my informants, these bands had a number of functions; (1) for ornamentation, (2) worn on the wrist after participating in a successful fight in which an enemy was killed, (3) worn below the knees to indicate that the wearer was brave, and (4) worn below the knees while traveling as a magical protection against poisonous snakes, and to increase the strength in the legs. Reed gives the latter explanation for their use, and notes that they were called "a-ya-bun." [173] I could not find this term among the Pinatubo Negritos, but the Bataan pygmies also use the boar's hair leg bands and call them *ayabóng.*

A variety of hair styles are encountered among the Pinatubo pygmies. Racially their hair is short and woolly, but where mixture with lowlanders has occurred it tends to become bushy. In general, the men wear their hair very short by constant trimming with a sharp bolo and some individuals clip a straight hair line on the forehead above the natural hair line. The latter is very common among the younger men, and is known by one of three terms; *lampáh, kantóh,* and/or *kilíng.* Informants report that a bowl-like haircut, called *dipadíp* (*hapmón* among the Botolan Sambal), was common in the past. In addition, the Negritos and particularly the lowland Sambal trimmed their hair to the skull on the back half of the head, that is, the hair behind an imaginary line drawn between the ears.[174] This latter style was called *tupíh.*

A variety of hair styles are also encountered among the women. Some individuals trim the hair very short, giving them a mannish appearance, while others, wear their hair in a huge, uncombed mass. The women often trim or clip the front hair close to the scalp, making an artificial hair line, the *lampáh* (*cf.* Plate 16, fig. 3).[175] According to informants, women in the past also wore the hair style described above as *tupíh.*

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[173] *Ibid.,* p. 38.

[174] *Ibid.,* Plate XVII. However, Reeds explanation that the hair was clipped in this manner only to eradicate vermin is not correct.

[175] *Cf.,* Miller, E. Y. The Bataks of Palawan. Manila (1905) plates 86 and 87.

Young boys and girls often wear a clipped "tonsure" on the back of their heads called *oldín* (from ordain "?"). The Pinatubo pygmies state that this practice originated among the lowland Sambal in the town of Cabangan (see Map) and tell the following story:

> One day a priest at Cabangan heard the birds and the snakes talking and learned that the children with *oldín* would be the friends of the birds, but the children without, would be bitten by the snakes. Now, to be safe, the children wear the tonsure.

Despite this modern explanation by the Pinatubo pygmies, I suspect that this custom is pre-Spanish, for similar practices are found among other Philippine pagan people.

Either a man or a woman may cut the hair of another man or woman. Following the hair cut, the *udúg,* the hair on the ground must be carefully gathered by the owner and burned. If another person is forced to gather the hair, for it must not scatter, a fine must be paid to that person by the owner of the hair. This action is necessary due to the belief that if cut hair should be mixed, the person having the less powerful personal spirit(s) would die.

Many of the Negrito men have marked face and body hair. Face hair is never removed, but rather, admired by the pygmies. A beard, *gayád,* is considered a mark of distinction.[176]

Three plants were collected which are used solely by the pygmies as "hair restorers":

Páhaw or *kabáhaw. Zingiber* sp.

The pygmies squeeze the juice from the head of the flower stalk of this plant and then apply it to the head. This herb is called *tamó-tamó* by the Sambal of Botolan. No cognates were found.

The Negritos also call another herb by the same generic term, *páhaw-na-hulyáw, Globba marantina* Linn., the "yellow *páhaw.*" This latter plant has no use.

Hogpáw. Cassytha filiformis Linn.

The stem of this leafless parasite is pounded, the juice obtained mixed with water, and the concoction poured over the head. No cognates were found.

Patúbo-habót. Equisetum sp.

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[176] Face hair is called *gúmi,* a "deep" Sambal term, and a person with a hairy body, *pugóh.*

This strange, almost leafless plant, is pounded and then mixed with water which is poured over the head. This local, descriptive plant name describes the use of this plant, "hair (*habót*) grower (*patúbo*)."

Some of the acculturated Negritos, but more commonly the Sambal, mix the perfumed flower of *ayangílan* (*ílang-ílang*, Bot.-Sbl.) which is a common tree, *Canangium odoratum* (Lam.) Baill., with *pumíd*, "pomade', and use it for a hair dressing.

MISCELLANEOUS USEFUL PLANTS

The large number of plants used by the Pinatubo pygmies made it impossible to establish specific categories for each. Consequently, the useful plants which have not as yet been discussed are treated below.

Aladóng. Trema orientalis (Linn.) Blm.

The bark of this tree, which is common in the secondary forests, is used for coffins. Bark coffins are called specifically *bakbák* (see Plate 18, figs. 1 and 2.)

Bangkál. Nauclea orientalis Linn.

The bole of this tree is sometimes hollowed out for small coffins which are used only for small babies and children.

Bagóyboy. Thysanolaena maxima (Roxb.) O. Ktze.

The flower panicles of this tall grass are sometimes bound together to form brooms, the *kakáig* or *kálih*. However, the pygmies rarely sweep their dwellings or yards and brooms are not frequently seen. No cognates were found for this plant name.

Biblíh. Guioa koelreuteria (Blco.) Merr.

The fruit of this tree is pounded to obtain an oil for illumination. The Sambal in the Municipality of Botolan call this plant *malahábi*.

Binúnga'. Macaranga tanarius (Linn.) Muell.-Arg.

The leaves of this tree are cut into pieces, dried in the sunshine, and then mixed with the native wines, *básí*, in order to strengthen them. The deeper Negritos do not normally drink intoxicants, and this practice is confined largely to the Sambal and to a few acculturated Negrito groups. The same practice is found among the Tagalog, the Ilokano, and other

ethnic groups. According to Merill, this tree is called *binúnga* in Tagalog, Pampangan, and Panay Bisaya, and the word-base of this plant name is probably *búnga'*, a widespread term for "fruit."

Kawáyan-mantűg. Bambusa spinosa Blume

The *talíbüng,* a meter-long drum used only in the ceremonies for the spirits, is made of this large, introduced bamboo. All of the nodes are knocked out and one end is covered with a piece of tanned deer skin. This drum, as well as the flat brass gong, the *paláy,* are purely ceremonial in use and are never played, even tapped, at any other time.

Góga'. Entada phaseoloides (Linn.) Merr.

The large seeds of this vine—the seeds are specifically called *uwá'*—are used in a bowling game.

Ingwál. Flagellaria indica Linn.

The seeds of this vine are roasted, soaked in water, and domesticated water buffalos are enticed to drink the brew. This decoction is believed to be an effective medicine for any type of animal sickness. In addition, the whole stem of this plant may be tied around the water buffalo's neck, when it is sick.

These techniques are also employed by the lowland Sambal and were undoubtedly borrowed from them. As noted, the deeper Negritos do not possess the water buffalo and even the acculturated Negritos have great difficulty in procuring the animal for farming purposes.

Labyák. Elatostema viridescens Elm.

The whole of this plant is used as a pig food. Tamed wild pigs, as discussed above, are favorite pets, and domesticated pigs are occasionally kept to become gifts to the spirits in the *iwí',* or the "fiesta of the spirits."

Laníti'. Wrightia laniti (Blco.) Merr.

Guitars, the *gitáda* (Sp.), are usually made of this wood (see Plate 17, figs. 1 and 2). The guitar is the favorite musical instrument of the Negritos in the Zambales Range and they have a great repertoire of "pandango" pieces. The form of their present guitar has been derived from Spanish instruments; however, it is possible that guitar-like instruments, other than the bamboo zither, were used by the pygmies in pre-Spanish times.

Lukó'-lukó'. Monochoria vaginalis (Burm. f.) Presl.

This plant, which is like a water lily in appearance and habit, can also be used as pig food. Similarities in the habit and appearance of this plant with the taro, a class of which the Negritos call *lukó,* has undoubtedly stimulated this plant name.

Magmamaní'. Alysicarpus vaginalis (Linn.) DC.

This is a common food for domesticated animals. This plant is called *maní-maní* in Botolan, Zambales, and Merrill notes that *Alysicarpus nummularifolius* (Linn.) DC., is called *maní-manían* in Tagalog, and *maní-maní* in Panay Bisaya. All of these local names suggest likeness to the "peanut" which is called *maní'* throughout the Philippines.

Púgoh-lukó. Leucosyke sp.

Bunches of the leaves of this plant are placed on the back to act as a protection for the skin when the pygmies are carrying the itchy parts of the taro. This plant name is derived from its use.

Tulúloy. Buddleia asiatica Lour.

When a baby has been crying continuously, and will not sleep, it is made to smell the smoke of this burning plant. The local plant name is derived from its use, as *túloy* means "sleep," plus the reduplication of the first syllable of the word-base.

Yúpal-mantŭg. Drynaria quercifolia (L.) J. Smith

Among the acculturated Negritos, two uses were encountered for this fern. The green leaves are placed on the bottom of the rice pot so that the under portion of the rice will not be burned and the dried leaves from the base of the plant are attached to a long pole to form clackers in order to drive the rice birds away from the field. This clacker is called *ayáy.*

Pínoy-yúpal, Drynaria rigidula (Sw.) Bedd., meaning the "small *yúpal,*" has the same uses. No cognates were found for the plant name, *yúpal.*

PLANTS HAVING NAMES, BUT NO USES

Eighteen plants, which are conceptually distinguished by the Pinatubo pygmies with names, but which have no uses, were collected. The number of such plants is, as would be expected, very small, for it is through use that specific plants become to have meaning to a people. Sixteen of these plants

have names which were unquestionably coined by the pygmies, and only two specific plant names which were apparently borrowed. I am surprised that there are even two, for uses will invariably diffuse with plants which have specific names.

Methods utilized by the Pinatubo pygmies in the formation of autochthonous plant names are reiterated in the following discussions of the non-useful plants.

Bawhít or *bahwít*. *Flüggea virosa* (Roxb.) Baill.
Phyllanthus macgregorii C. B. Rob.

The Christian Sambal call these two plants *bawhít*, but the Negritos usually employ the metathesized form, *bahwít*.

Kayapkáp-büngáw. *Marchantia* sp.

The habits and habitat of plants are frequently embodied in the autochthonous plant names, as in the case of this liverwort. The plant is creeping, *kayapkáp*, and found along the wet banks, *büngáw*, or rivers.

Kulútu'. *Panicum indicum* Linn.

Sand fleas are called *kulútu'*, and the ordinary house lice, *kútu'*. As this plant is found on the sandy banks of rivers and brooks, it might account for the name, "sand flea."

Halapáng. *Alloteropsis semialata* (R. Br.) Hitchc.

The related physical characteristics of plants commonly stimulate the descriptive, local names. The tassle of this grass looks like the trident-like head of the bird arrow called *halapáng;* hence, this plant name.

Halóloy-pahínga'. *Kyllinga cylindrica* Nees

A sizable number of plant names coined by the Pinatubo pygmies are merely amusing, a humorous reference, as in this instance. *Halóloy* means *"fish-stringer,"* and *pahínga'*, "frog"; thus, the "frog's fish-stringer."

Huhúka'. *Knoxia corymbosa* Willd.

The Pinatubo pygmies commonly form autochthonous plant names by an initial reduplication of the first syllable of a word base; for example, *düdüngóy, Mimosa pudica* Linn., *tutúloy, Buddleia asiatica* Lour., *laláta', Maoutia setosa* Wedd., *lalátoy, Schismatoglottis* sp. (the latter plant also has no use), and others. Invariably, these coined plant names have a derived

meaning (see the discussions of *düdüngóy* and *tutúloy*). *Húka,* means "vomit" which suggests that this plant causes vomiting. However, Quisumbing [177] does not note that *Knoxia corymbosa* Willd., is a vegetable poison and I neglected to obtain the meaning of this plant name to the pygmies.

íkoy-púha. *Setaria geniculata* (Lam.) Beauv.

The tassle of this grass suggests its name; "cat's (*púha*) tail (*íkoy*)." It is possible that some of the descriptive names, such as this one, have been borrowed and are not locally coined terms. The Tagalog, for example, call this same plant *buntót-púsa'* which has the same meaning. However, translation of borrowed plant names would occur only when members of the culture were bilingual. It is more likely, I believe, that the same relationships were seen independently and the names coined independently.

Mágkakatimón. *Ipomoea pes-tigridis* Linn.	*Katimón.* *Citrullus vulgaris* Schrad.
Magduduhó. *Nervilia aragoana* Gaudich.	*Duhó'.* *Kaempferia* sp.
Máglalagyában. *Tacca vesicaria* Blco.	*Lagyában.* *Tacca leontopetaloides* (Linn.) O. Ktze.
Malakápah. *Mallotus* sp.	*Kápah.* *Ceiba pentandra* (Linn.) Gaertn.
Malakarí' *Atylosia scaraebaeoides* Benth.	*Karí'* (not collected)

The above plant names (in the left column) of non-useful species have apparently been suggested by the relationship of these plants to useful plants. All of these names have been formed by the affixation of *mala* and *mag,* the latter with a reduplication of the first syllable of the word-base, and imply "likeness" of one plant to another. The plant names formed in this manner do not, however, necessarily denote the Negritos' ideas of "true" floristic relationships, as do such plant names as *kaváyan-mantŭg,* and *kaváyan-kilíng.*

The affixation of *mala* to denote "likeness" is found in many, possibly all Philippine dialects. A plant name such as *malaúbi,*

[177] Quisumbing, Eduardo. Vegetable poisons of the Philippines. Philip. Jour. Forestry (1947) 145–171.

Aristolochia sp., which is used by the Pinatubo pygmies, was probably borrowed with the affix included, for this plant name is found in many other dialects. Others, such as the above five names, were apparently coined by the pygmies utilizing methods of affixation characteristic of Philippine dialects as a whole.

When more ethnobotanical data is available for comparative purposes which clearly distinguishes the autochthonous plant name from the borrowed plant name (i. e., the "specific" plant name), it would be valuable to study the methods of affixation used by many ethnic groups in the formation of plant names. Such a study might show older linguistic and cultural relationships.

Páli-páli-laynî'. Andropogon nitidus (Vahl.) Kunth.

This grass which has a grain somewhat like rice is said to be the "rice (*páli*) of the *laynî'* (the Manikin or ricebird, *Lonchura* sp.)."

Pánan. Freycinetia sp.

No derivations or cognates were found for this plant name. The plant is sometimes called *panglán-bakî'*.

Púgo-púgo. Uraria lagopodioides (Linn.) Desv.

The Negritos could give no explanation for this plant name and it is possibly specific and borrowed. *Kyllinga brevifolia* Rottb., according to Merrill, is called *pugó-pugó* in Cebu Bisaya.

Yaw-yáw-pahínga'. Fuirena umbellata Rottb.

This is another of the many amusing plant names obviously coined by the pygmies. *Yaw* means "arrow" or "bow and arrow," and *pahínga'*, "frog"; thus, this plant name means the "bow and arrow of the frog."

Appendix I

PLANT NAMES EMPLOYED BY THE PANATUBO NEGRETOS FOR WHICH COGNATES HAVE NOT BEEN FOUND.

alpúgan. *Leptosolena haenkei* Presl.
anggagaí'. *Gomphandra cumingiana* (Miers.) F.-Vill.
appláy. *Quisqualis indica* Linn.
apyóh. *Callicarpa formosana* Rolfe
aymála. *Clerodendron* sp.
bagóyboy. *Thysanolaena maxima* (Roxb.) O. Ktze.
bagüng. *Amorphophallus* sp.
bakálang. *Dioscorea* sp.
bakálih. *Celastrus paniculata* Willd.
balikwáh. *Streptocaulon cumingii* (Turcz.) F.-Vill.
bangábah. *Macaranga grandifolia* (Blco.) Merr.
batláy. *Strychnos multiflora* Benth.
bawúgan. *Dioscorea esculenta* (Lour.) Burkill
biblíh. *Guioa koelreuteria* (Blco.) Merr.
binahak. *Schizostachyum* sp.
boyngáh. *Wendlandia luzoniensis* DC.
bukó-bukó. *Blechnum pyramidatum* (Lam.) Urb.
dalanüp. *Tetrastigma* sp.
dalapüyIn. *Loranthus philippensis* Cham. and Schlecht
dalín. *Flacourtia indica* (Burm. f.) Merr.
damímí. *Begonia* spp.
danukó'. *Clerodendron minahassae* Teysm. and Binn.
dapuyan. *Leptosolena haenkei* Presl.
diwal-ak. *Osbeckia chinensis* Linn.
dumúdoh. *Mitrasacme polymorpha* R. Br.
dupílak. *Glochidion luzonense* Elm.
duwáman. *Schizostachyum* sp.
ganÍhI'. *Schizostachyum* sp.
gatÍl. *Ficus pubinervis* Blm.
gudulyó'. *Chenopodium ambrosioides* Linn.
gulunggút. *Thunbergia fragrans* Roxb.
hayápüh. *Eleusine indica* (Linn.) Gaertn.
hógat. *Elephantopus spicatus* Aubl.
hogpáw. *Cassytha filiformis* Linn.
hüláng. *Micromelum inodorum* (Blco.) Tanaka
kabwáng. *Dioscorea hispida Dennst.*
kalaíhan. *Aglaia* sp.
kalangyá'. *Abrus* sp.
kalyámat. *Ficus bakeri* Elm.
kamalíngaw. *Ficus subulata* Blm.
kapurál. *Salacia philippinensis* Merr.
katín-ay. *Kleinhovia hospita* Linn.
kI'táng. *Merremia umbelleta* (Linn.) Hallier f.
lagonháy. *Erigeron sumatrensis* Retz.
lagyában. *Tacca leontopetaloides* (Linn.) O. Ktze.
lánah. *Rottboellia exaltata* Linn.
langgínu'. *Securidaca corymbosa* Turcz.
líha. *Centrosema plumieri* (Turp.) Benth.
lihík-lihík. *Crotalaria* spp.
lingí'. *Sida acuta* Burm. F.
mahoplák. *Grewia eriocarpa* Jesus
malúko. *Anacardium occidentale* Linn.
móa. *Miscanthus sinensis* Anders.
müngíw. *Clerodendron intermedium* Cham.
páhaw. *Zingiber* sp.
pakbüt. *Antrophyum sessilifolium* (Cav.) Spr.
pánan. *Freycinetia* sp.
pangkól. *Aralia bipinnata* Blco.
panóypoy. *Kowlowratia elegans* Presl.
pulínin. *Hymenodictyon excelsum* (Roxb.) Wall.
püdá'. *Pueraria phaseoloides* (Roxb.) Benth.
tagatúhí'. *Abelmoschus moschatus* Medic.
taludáyIn. *Athyrium blumei* (Bergsm.) Copel.
tanggútum. *Solanum* sp.
tanyúong. *Vanieria cochinchinensis* Lour.
tayungtúng. *Melastoma polyanthum* Blm.
tümtüm. *Hyptis suaveolens* Poir.
ulíp. *Cypholophus moluccanus* (Blm.) Miq.
yábIl. *Schizostachyum* sp.
yúpal. *Microsorium Schneideri* (Christ.) Copel. *Hemionitis arifolia* (Burm.) Moore

Appendix II

THE BOTANICAL TERMINOLOGY USED BY THE PINATUBO NEGRITOS WITH COMPARATIVE NOTES

Note: The following terms, unless specifically marked as exceptions, are identical, phonetically and semantically, with the Sambal spoken by the Christian lowlanders in the Municipality of Botolan, Zambales.

alagûogkáyu, hollow tree
alálang, branchlet of bamboo
büyá, husked rice (*boyá,* Bot.-Sbl.)
büyáng, outer hard wood of palms
bágbag, an extensive forest tract containing large trees
balanḯt, the sheath at the base of palm fronds
balukágkag, peeling epidermis, e. g., of bamboo
bátang, log
bíah, an internode of bamboo or canes
bikháy, strip of bamboo
bílhák, strip of rotten bamboo
búkal, flower (metathesis of other more common words for "flower," *bulaklák,* Bot.-Sbl., or *búlak* H.-Bis.)
bukbúk, weevils which attack bamboo
búkI', bud or young fruit
bukóh, the node of bamboo or canes
búhak, heartwood, or the hard core of plants
bulaklák, flower (*cf., búkal*)
bulóng, leaf
bunót, husk of the coconuts
bútil, seeds of beans
but-ó, seed (also "bone")
buwíd, mid-rib of individual leaves (*buód,* Bot.-Sbl.)
buwóy, infructescence of the bananas
kaün, cooked rice (kanîm, Bot.-Sbl.)
kayákay, parasitic or epiphytic plant
kayapkáp, ground-creeping plant
káyu, tree; wood
kíniw, vine (*wakáy,* Iba-Sbl.)
kᵘwát, mushroom or ear-fungus
dalíg, buttress root
datűng, young leaves or leaf tops
duwí, thorn; spine
gabók, powdered corn or rice (by pounding)
gaw', dried length of bamboo
gatá', coconut milk
guák, sheath of the banana stalk (*ubák,* Bot.-Sbl.)
háa, bananas
halá', fuzz of flora
hangá, branch
hángi', banana sucker
hóyboh, flower tassel of grasses
húnga', hole in tree
íIt, noise coming from a plant, e. g. the creaking of bamboo
hungót, tendril of plants
labóh, fleshy, edible portions of fruit
labúng, edible growing tips of bamboo
lahí, kernel of corn
lalí', forest (*tatalón,* Bot.-Sbl.)
lamán, specialized underground parts of plants, viz., tubers
lamón or *dikót,* grass (*hilámon,* H.-Bis., and *damo,* Tag., are related terms)
laóg, coconut fruit cluster
lápa, taro leaves
laták, seedling of cultivated plant which grew without purposeful planting.
láwi, rattan
lumót, moss
lumták, report of cracking bamboo, when caused by sunshine
lumtóh, report of cracking bamboo, when caused by fire

luptí', outer bark of vines (*lupí*, Bot.-Sbl.)
malámon, luxuriant growth
mantŭg, true (e.g., a "true" type of plant)
mímí, hard, sharp, shoots of grasses
pakó', ferns
páhi, rice grain
palákay, seedling
palahán, edible growing tips of rattan
páli, rice (in the field)
palaópa, a whole branch of a palm or banana
pató', bast of vines or hanging roots (no cognate found)
píhi', divisions of fruits, viz., of a citrus (also called *bih-íl* by the Negritos, and *bi'hil*, Bot.-Sbl.)
pipít, flower of the taro (no cognates found)
púlu', clump of trees (obviously derived from usual term for "island")
pulyó', tall, young bamboo, bamboo shoots
pinúho, ear of corn
puón, bole of tree
tadók, edible, young leaves or leaf tops (*tarók*, Bot.-Sbl.)
tagálbag, denoting plants the fruit of which birds do not eat
tagóy or *búnga'*, fruit (no cognates found for *tagóy*)
tawón or *tanáman*, plants, (generic term)
tíbaw, roots which grow deep in the ground, and then come to the surface again, viz., roots of *úbi*
tĺnak, thick growth of grass
tipukhó, a young mushroom which is not yet opened
toktók, drinkable water obtained from plants
tingtíng, mid-rib of palm leaves
títi', flowers of bamboo
tumpók, corn-cob
úbakkáyu, bark of trees
úbol, the tender, edible growing part of palms within the terminal crown of leaves
umhók, edible roots of taro
ungót, coconut
úpah, dried sheat of the banana stalk
uwáy, head, or blade, of rice
yábot, kogon
yagáw, branch of a dead tree or fuel
yagát, leafless tree
yamót, root
yatáng, root climbing on a cliff, or hanging down over a cliff (no cognates found)
yubúg, a tree without branches, but with a crown, viz., a palm
yúdo, an edible starch obtained from the trunks of specific palms (*yúro*, Bot.-Sbl.)

ILLUSTRATIONS

[Line drawings are by Manuel M. Santiago of the National Museum. The photographs, Plate 6, fig. 4, and Plate 16, fig. 5, were obtained by Mrs. Hans Steiner while on a field trip with the writer. All of the other photos were taken by the author using a 35 mm Leica camera. Five other recent photographs of the Villar area can be found in McVittie's Orchid hunting in Zambales. Philippine Orchid Review 1 2 (1949) 23–24.] 23–24.]

PLATE 1

A distribution map of the Pinatubo Negritos showing the trails, villages, topography, and the area of intensive ethnobotanical and ethnographical study.

PLATE 2

FIG. 1. A scenic shot looking down from the middle talus slopes of Mt. Pinatubo towards the Bucao River Valley, and in the far distance, the China Sea. The typical environment is shown; upland grasslands, scattered secondary-growth forests, and stands of the wild banana.

2. Showing the method in which water is obtained from the wild fig, *Ficus nota* (Blco.) Merr.

PLATE 3

1. A typical river scene. My close friend and informant, Emilio Balintay, has just finished diving and shooting fish from under the water.
2. A family group at Balín-Biklát who were temporarily living along the river. They were cooking fish and shrimp which they had caught, as well as a *baón*, "provision," of the sweet potato which is invariably carried with them when they travel.
3. The Bángan-Lábaw River near Villar with *tambó*, *Phragmites* spp., and the conifer-like, *agóho*, *Casuarina equisetifolia* Linn., lining the banks. The young man of mixed blood in the foreground rests in the characteristic squatting position called *talímpo'*.

PLATE 4

FIG. 1. These are "deep" Negritos—most of the inhabitants of Gᵘwálda—who are relatively unmixed and who still evidence the pygmy type.

2. A young man at Yamtók demonstrating how the two-stringed bamboo zither is played. Note the sweet potatoes.
3. A clearing of corn and upland rice at Pauúwin which shows the characteristically poor growth of these crops. The man is wearing a bamboo comb.

PLATE 5

FIG. 1. A "dandy" wearing the *biniknál* style of loin cloth which has a long tail.

2. This man is wearing the everyday type of loin cloth with an additional waist wrapping. Note the home-made shotgun that he is holding.
3. The *talupína* style of G-string normally worn by the young boys.
4. The typical dress of the contemporary Negrito women; a wrap-around skirt and slip-over waist. Note the method by which the woman carries the pack-basket and the fire brand, the *aypóh*, in the woman's left hand.

PLATE 6

FIG. 1. Two men at Kawayan stretching and twisting the trimmed bast of a hanging root into a bow string.
2. The method employed in scraping a bow into the desired shape.
3. Attaching the feathers to the shaft with the trimmed bast of plants by rolling the arrow against the thigh.
4. A young boy with a bow and arrow made of bamboo.

PLATE 7

FIG. 1. The unusual *binulílat* or *biniling* type of arrowpoint which is extremely difficult to make and which is highly prized by the Negritos.
2. The *dumpíl* type of arrowpoint which is now employed for payments of the bride price but which was formally used in fighting.
3. The *niyumbúng* arrowpoint employed in shooting large fish, snakes, monitor lizards, fruit bats, and large birds.
4. An arrow with a large metal blade, the *tul-ó*, for hunting pigs and deer.
5. The *hübát;* an arrow with a detachable point. Note the *lobúngan* (a), that is, the intermediate piece of hard wood, the strong cord (b), securing the point to the shaft, and the *gamít* (c), a protective weaving around the foot of the shaft.
6. The *balangát*, a trident-like point, used in shooting birds and bats.

PLATE 8

FIG. 1. The methods employed by the Negritos for measuring the proper lengths of the different types of arrows. In this manner, each individual has arrows of distinctive length. "A" and "B" are the proper measurements for "hunting" arrows such as, the *niyumbúng*. "C" and "D" are the proper measurements for the "flight" arrows. The bird arrows, the *balangát*, are equal to the length of the full arm span plus one or two lengths of the first finger.
2. The *kopût;* a protective covering for the finger grip.
3. Showing the relationship between the inner wrapping, *bülbûl* (a), and the outer wrapping, *apün* (b).
4. The typical arrow grip.
5. The bow string knot.
6. The bamboo point used with the "belatic" types of trap.
7. X-sections of bows utilized by the Pinatubo Negritos.

8–18. The common decorative patterns found on the arrowshafts. The incised designs of the following figures have specific names: (8) *niúpal,* (9) *kinawíng,* (10) *halóbung,* (13) *tináh-tatló,* (15) *híko-híkoh,* (17) *papüpín,* (18) *hinimpáy,* if this same design points to the left, *ginayáman.* One or more simple vertical lines are called *gúlit,* but if horizontal, *küyít.* As we have noted, the general term for incising is *bátik.* The design element shown in Fig. 11 is wholly magical and placed on the arrows so that the spirits of the forest will not be angry at the user of the arrow. The design *halóbung,* Fig. 10, is never placed on hunting arrows, or on arrows which are carried on a trip. Something dangerous will happen or an accident will occur to an individual travelling or hunting with an arrow having this design element. It commonly appears on arrows utilized for bride price.

PLATE 9

FIG. 1. The *katána* which is used in fighting, as gifts to the spirits, for bride price, and in ceremonies.
2. The *dipaláta* (a) which has the same uses as the *katána;* (b) x-section of the bolo scabbard showing method of construction; (c) the traditional form of bolo scabbard made by the Pinatubo Negritos.
3. The *talódo;* a thick bladed work bolo.
4. The *hundáng;* an all-purpose bolo. One of this type of bolo is possessed by every Negrito man and is worn on most occasions.
5. The *ádol;* a work bolo.
6. The *ongkáb;* also a work bolo.

PLATE 10

FIG. 1. Two young boys having enlarged abdomens, called yükyük, which are so common among the Negrito children.
2. A young boy whose body was almost totally infected with dermatosis. This is a common sight in some of the deeper Negrito villages.

PLATE 11

FIG. 1. The *hawóng;* a pup-tent like temporary dwelling.
2. The *timpó';* this particular dwelling, as can be seen, was built almost entirely of bamboos.
3. The box-like *dalupán;* a unique type of dwelling found among the Pinatubo Negritos. Note the stands of *Bambusa* spp., in the back-ground and the grass table-lands.

PLATE 12

FIG. 1. A crude temporary shelter commonly encountered along the rivers.
2. The *tinangŭb;* the most common dwelling form built by the Negritos in the Pinatubo area.
3. This dwelling, like many, is built of limbs and the dried sheath stripped from the stalk of the wild banana. The peak of Mt. Pinatubo is seen in the background about six kilometers away.

PLATE 13

FIG. 1. A forge at Koyumbót.
2–3. The piston before and after the feathers forming the gasket have been attached.
4. A forge at Yamtók fastened to the living platform of the dwelling. Note the stakes between the shield and the bellows which, as we have seen, have a magical function.

PLATE 14

FIG. 1. The *lubón;* the characteristic pack basket of the Negrito women.
2. A winnowing tray made by the Aburlin pagans but commonly utilized by the Pinatubo Negritos.
3. The *talín-talín;* an all-purpose, household basket.
4. The *balín-pantíng;* a small basket which houses the "strike-a-light" and other small personal effects. This photo has been greatly enlarged to bring out the details of the basket, for it is only about 5" long and 2" or 2½" high.
5. The *dandán;* a woman's pack basket made of rattan.
6. The *taponán;* a crude basket used by the women while working in the clearings.
7. The *koyumpól;* a "fishing-creel."
8. The *lubón-lubón;* a small pack basket.
9. A typical *lubón,* pack basket, with a head strap made of the dried sheath of the banana stalk.
10. The *sakopít;* a men's pack basket supported with shoulder straps.

PLATE 15

FIG. 1–3. Bamboo combs from southern Zambales. Note that the incised designs are identical to those found on the arrowshafts (Plate 8, figs. 8–18). In southern Zambales and Bataan these combs are worn by the women.
2. Small bamboo comb worn by the men in the Pinatubo area.
4. The *tabüngbüng;* a bamboo zither.
5. The *kulibáw;* a "jew's harp" made from bamboo.
6. Neolithic stone tools found by the Negritos in the Fort Stotsenberg area and used as talismans.
7. Water goggles, the *antúko,* made from tubular bamboos.
8. The *bibilángan;* a "calendar." When all of the pegs are on one side, it is Sunday or *madawák alló,* the "bad day." Monday through Saturday correspond to the Spanish names: Lunes, Martes, Mierkoles, Huebes, Biernes, and Sabado. When a peg, beginning at the top, is shifted to the opposite row of holes, it is Monday, and so on until all of the pegs have been shifted to the opposite row. Very probably this device has been borrowed from the Sambal but at present it is not found among the latter group. The Negritos also keep track of the days by making marks with charcoal on the house-posts, and by tying knots in a string. The latter device is called *gatíl.*

FIGS. 9–11. Neckless having magico-medicinal value made from the long bones of monkeys, tails of civets, and the upper and lower jaws of the giant "rat."

PLATE 16

FIG. 1. A Negrito woman at Bulate, Bataan, wearing a bamboo comb.
2. A Pinatubo Negrito boy a Villar, Zambales, wearing a smaller bamboo comb.
3. This photograph shows the *lampáh;* an artificial hair-line on the forehead.
4. A typical Negrito woman wearing a necklace of seeds and monkey long-bones.
5. A boy showing the chipped incisors which are characteristic of all of the Negritos in the Zambales Range.
6. A man wearing the *bagüdi,* a "neck band." Note that he is smoking a cigarette with the lighted end in his mouth.

PLATE 17

FIG. 1. Guitar makers at Kawayan, Zambales.
2. A young girl demonstrating the method in which the guitar is played.

PLATE 18

FIG. 1. A large strip of bark to be used as a coffin drying in the sun.
2. The body of a woman wrapped in this same bark and tied with vines. The coffin is on a litter ready to be carried to the grave.

120°00' 120°20'

DISTRIBUTION MAP OF THE PINATUBO NEGRITOS

BY

ROBERT BRADFORD FOX

1947

TARLAC

ZAMBALES

PANGASINAN

NUEVA ECIJA

PAMPANGA

BATAAN

MOUNTAIN PROVINCE

ABURLIN

PAGANS

PINATUBO NEGRITO

SUBIC BAY

SOUTH CHINA SEA

Bueno

Mabaruc

Tinec

Lo

N

15°00

15°00

to IBA

BOTOLAN

CABANGAN

SAN NARCISO

SAN MARCELINO

SAN ANTONIO

BAKONG

G. WALDA

POONBATO

KAWAYAN

BALIN-BIKIAT

TORO

MAGISGIS

TUMAMOK

INSUNAY

KUBANG

UGIK

TUAK

PAUUWIN

TABUNOC

VILLAR

DANGLA

Ro:?

PATANTAN (BAKLAY)

KOYUMBOT

YAMTOK

YAMOT

SAWANG NEGRITO

SAWANG

AGLAO

LATA

SUBIC

DINALUPIHAN

TOBO-TUBO

BULATU

LANKA

KEY:

- AUTOMOBILE ROADS
- TRAILS
- PROVINCIAL BOUNDARIES
- CHRISTIAN TOWNS
- NEGRITO VILLAGES
- AREA OF INTENSIVE ETHNOGRAPHIC RESEARCH AND BOTANICAL COLLECTIONS

After:

CENTRAL LUZON

Scale: 1:200,000

1½0 5 10

KMS.

C & G S 1940

J. F. Baniza, 1950

120°00' 120°20'

PLATE 1.

DISTRIBUTION MAP
OF THE
SPANISH MISSIONS
IN
CALIFORNIA

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PLATE 2.

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PLATE 7.

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PLATE 4.

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PLATE 5.

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PLATE I

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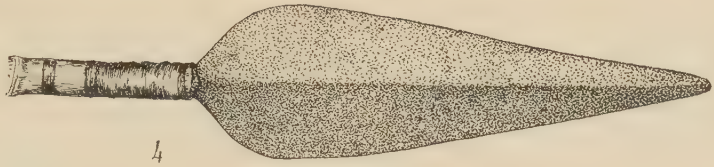

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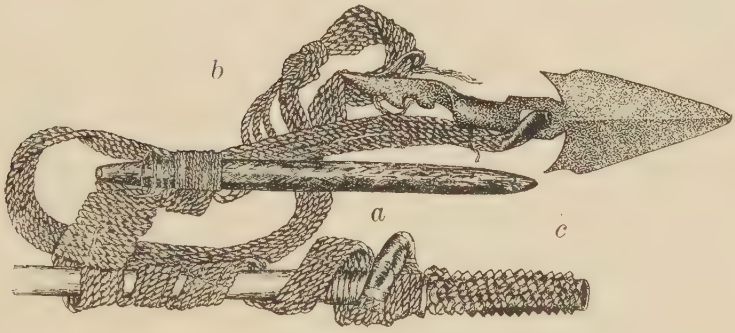

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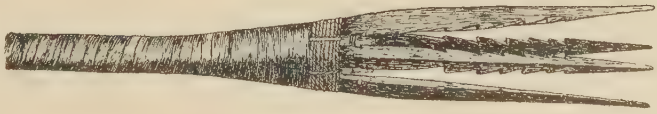

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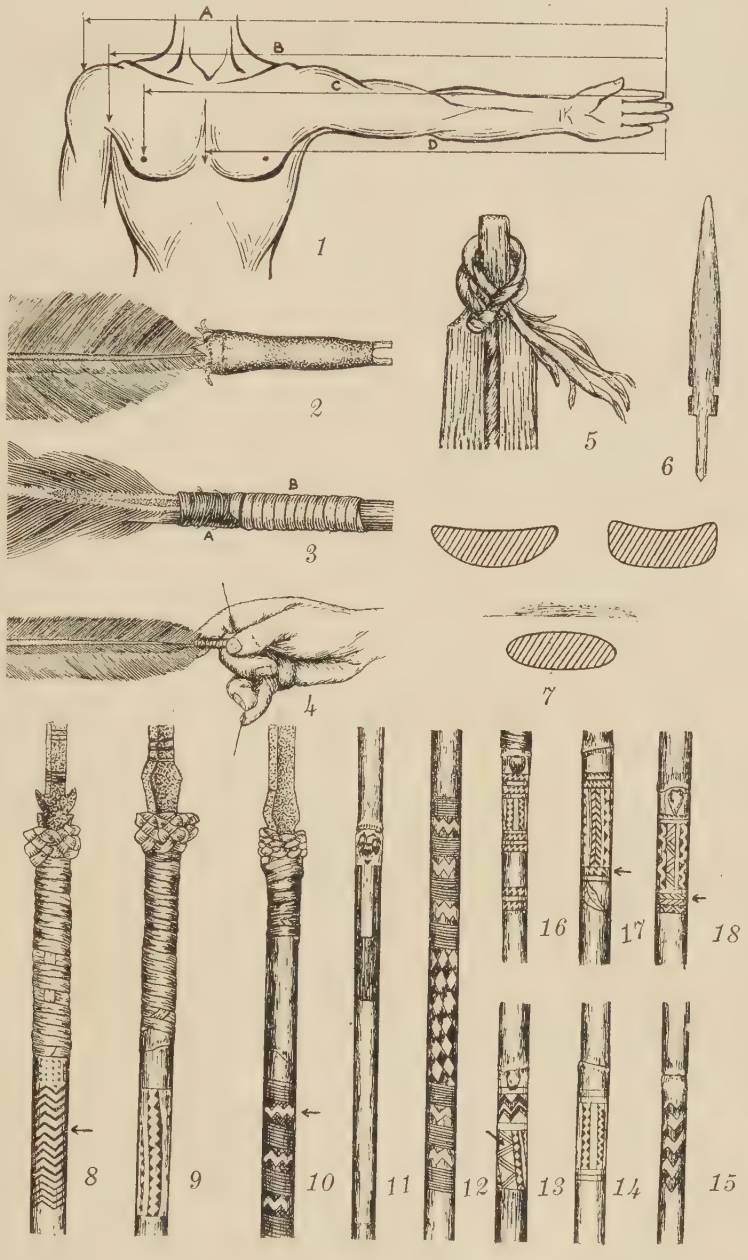

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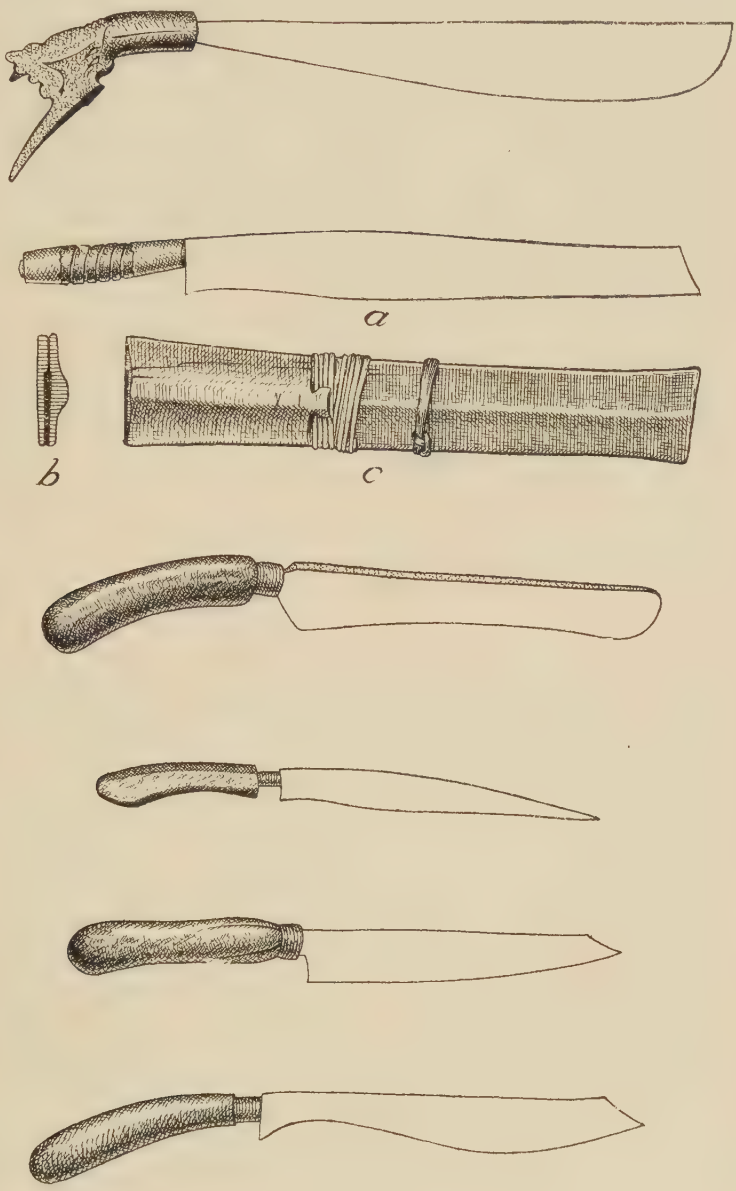

PLATE 9.

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PLATE 10.

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PLATE 11.

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PLATE 12.

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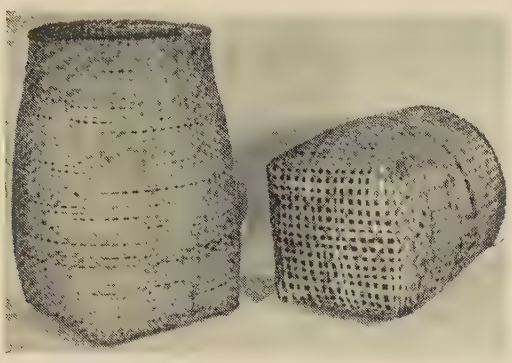
PLATE 13.



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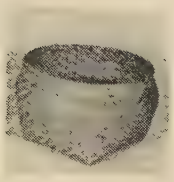

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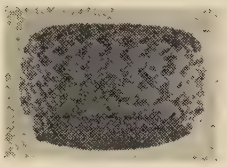

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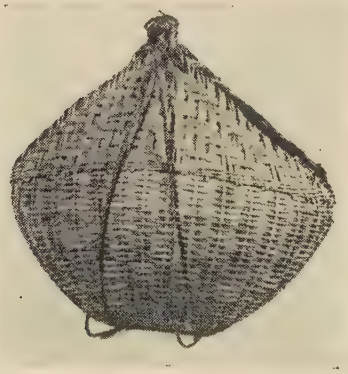

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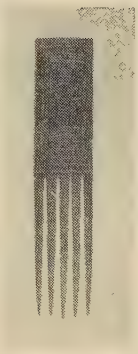

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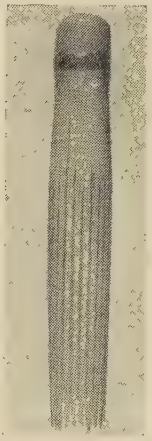

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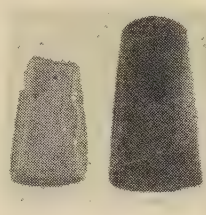

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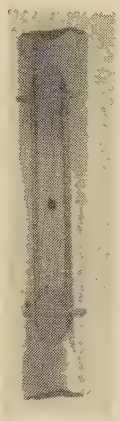

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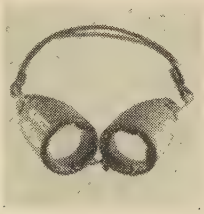

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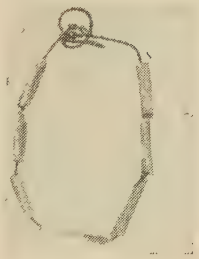

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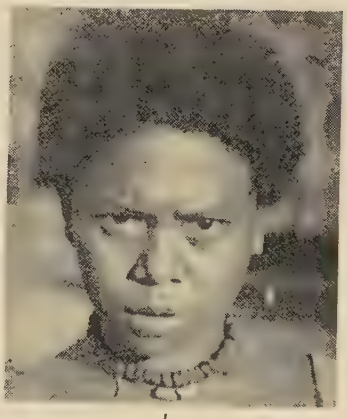

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PLATE 16.

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PLATE 17.

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PLATE 18.

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VOLUME 81

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